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Air Trails

THE LEADING MAGAZINE OF AIR PROGRESS AND AEROMODELING

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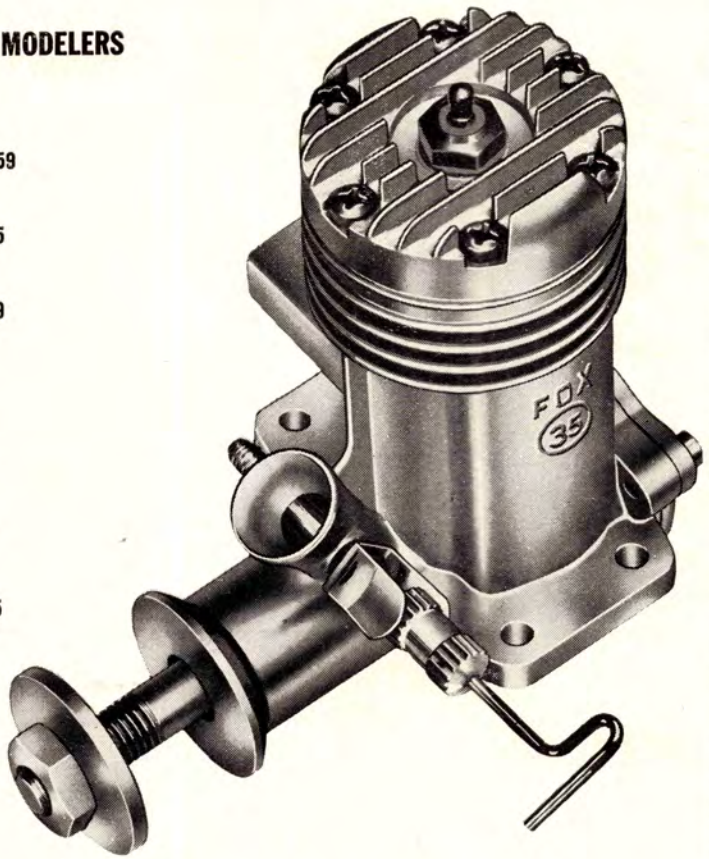

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Cover: Airliner of the future. Winning design of this month's Airmen of Vision. Large area of delta-like wing permits carrying large fuel supply for exceptionally long range.

Dec. 1953 • Vol. 41, No. 3

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FROM THE READER

Douglas B-26 . . . After I got word from you that the full-size Air Trails plan which included Atkin's B-26 Douglas Invader control line scale model was no longer available, a modeling buddy of mine turned up with one. How come?

Jim Vale, Inglewood, Calif.

• Sorry, Jim. First we were right (the supply was exhausted), then your buddy was right (the plan has recently been reprinted). Hobby Helpers, the outfit that handles "AT"s" plans now at 770 Hunts Point Ave., NYC 59, reissued this design in response to repeated requests. Backing up Atkins' B-26 is Don Still's "Stuka Stunt" model which won top stunt honors at the last Plymouth Internationals . . . they call it Group #253R.

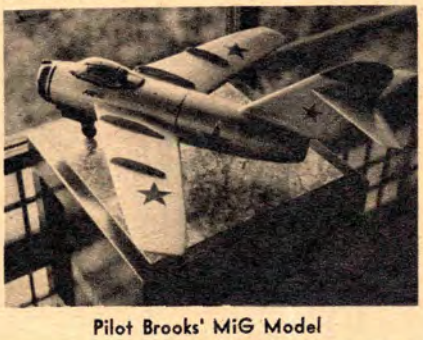
From the "High Country" . . . Just finished reading your column and noted that you seemed a bit surprised that model airplanes are now the No. 1 hobby in America. To substantiate Mr. Hinson's "claim," I am enclosing an article from the magazine section of the Denver (Colorado) *Post*. Thought you might find it interesting.

We have plenty of ardent modelers even out here in "high-altitude" country. Our flying field here is 5600 feet above sea level. My only complaint about this section is that you can't fly free flight without combining a little mountain climbing with it. Modelers in the flat part of the country just don't realize how fortunate they are!

Herbert W. Brown, Rifle, Colo.

F-84 Pilot . . . Enclosed are some pictures I have taken of my "MiG-15" which I made here in Japan. I am a member of a certain Fighter Squadron and we fly the good old "Iron Crowbars" or F-84s as they are better known to all of you back there. Just thought I'd let you see that the model industry over on this side of the world is really going full blast and a lot of people are doing radio and U-control flying here.

The MiG-15 is my own product in that I couldn't find a kit of this ship that suited my asking. Plus the fact these distributors have some of the wildest ideas of how the enemy must look. Wow. I spent five months in Korea and flew combat in the F-84 which makes me no hero, but I did see several good pictures of the MiG while sitting on the ground at Antung taken with telephoto lenses and the latest ones of the captured MiG from Denmark. From these I started out with a block 3" square and made the fuselage which is completely round. The rest is balsa and 14 coats of silver with three



Pilot Brooks' MiG Model

Pilot Brooks and His F-84

coats of clear lacquer. The end results were fair. The cockpit was given all the attention it could be afforded and features radio, ejection seat, sight, oxygen bottles, and painted dials. Interior is green.

Despite what you may have heard the MiG-15 is a beautiful ship in all respects except her range and a lot of pilots called her the "Chrome Plated Bullet."

Keep the issues coming and let's have some ideas on the jet models. No reason for these guys to get scared of them, is there? What's wrong?

Lt. Dwight F. Brooks, c/o P.M., San Francisco, Calif.

• Did you "catch" Sgt. Baker's Devil Dart job in the September issue, Lieutenant?

Why Not 2000, Joe? . . . Though I have had only a year's subscription and started to read your magazine in 1950, I wouldn't mind reading it until 1999.

Joseph Keyes, Gary, Ind.

All communications to the editors should be addressed to 304 East 45th St., New York 17, N. Y **Subscription prices:** U. S. and Possessions—$3.50 per year, $6.00 for two years; Canada—$4.00 per year, $7.00 for two years; countries of the Pan American Union—$7.00 per year, $10.00 for two years; elsewhere—$10.00 per year, $14.00 for two years. **Please advise us if you move,** giving old address and new address; allow four weeks for change of address; address all subscription mail to **Air Trails Subscription Department,** 304 East 45th St., New York 17, N. Y.

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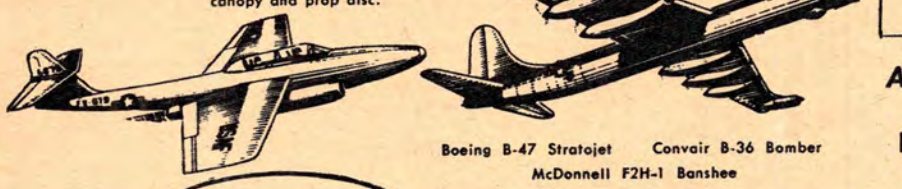

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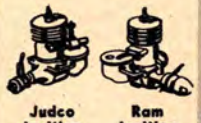

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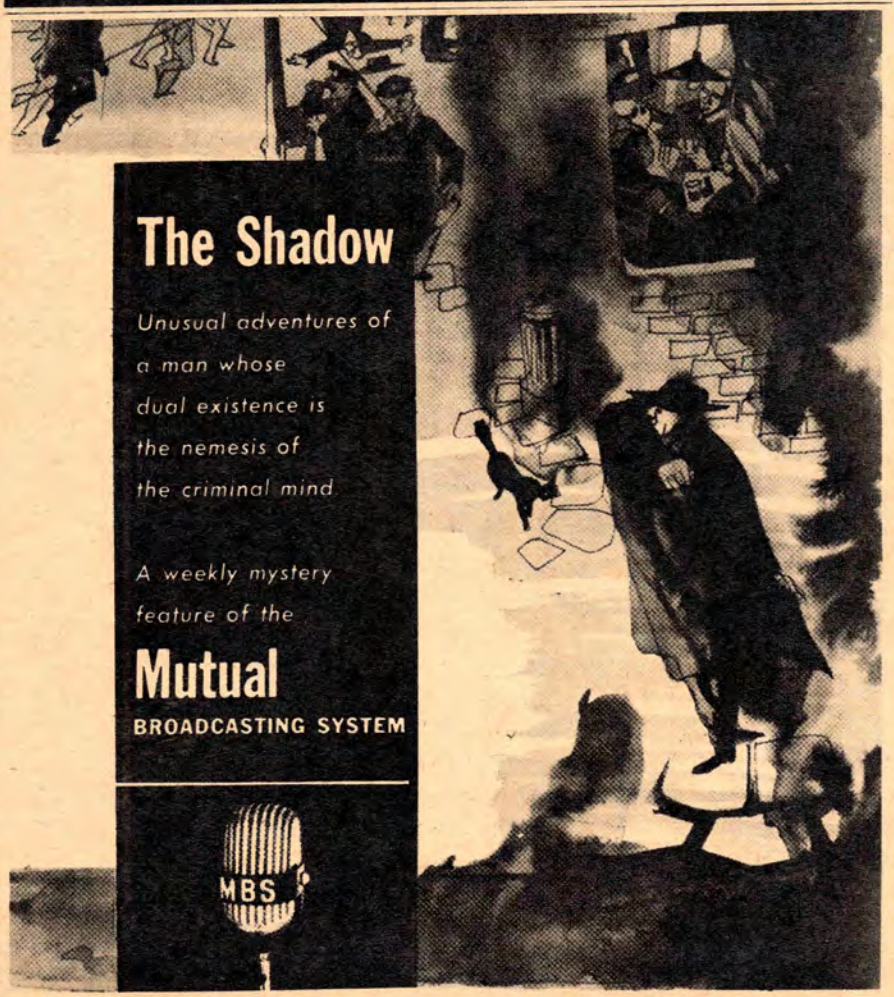
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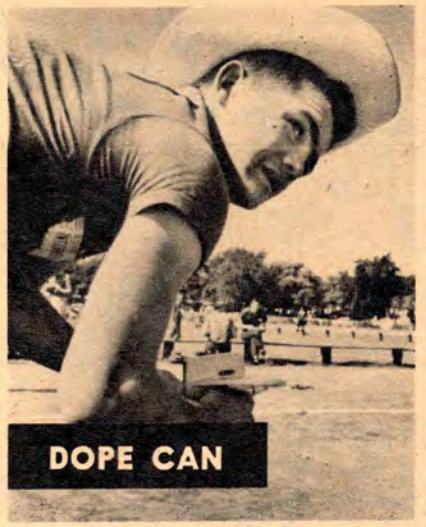

"Do I launch it or don't I?" seems to be the question here. This is a look familiar to all speed flyers as assistant waits for wave-off.

Here's inside story on Nats location

■ Dope Can, you know, has always welcomed comment, opinion and suggestions from any and all interested modelers. If you've got something to say and can write it so we can decipher it, then these columns are open to you at all times. As a departure this month from the regular routine, the readers write the column and we keep our own big yap shut except to answer questions.

Tip from Tipton. Asks W. E. Wiese of Tipton, Kans.: "Why not have one of your columns suggest that all model builders drop a line to the A.M.A. telling where they would like the Nationals to be held? That way a mass vote could be taken."

Sorry, W.E., the Nats are located not by vote of the modelers, but through a prearranged plan. When the A.M.A. signed an agreement with the National Exchange Club for the latter to sponsor the meet over a five-year period it was with the understanding that the contest would be held in the West (Los Alamitos), East (Willow Grove), and Central Section (probably Olathe or Chicago). Then the pattern repeats—West, East, Midwest, etc. Idea was to give more modelers a chance to compete in the Nationals at least once every three years without having to travel more than 500 or 600 miles.

So much for the general location. Since the U. S. Navy now plays host to the contest (provides the base, housing accommodations, food at cost, personnel, etc.) the meet must fit in with the Navy's tight training schedule. Since it would be impossible for the Navy to turn one of its active bases over to the modelers, the Nats are run off on "reserve" training bases—Olathe, Dallas, Los Alamitos, Willow Grove N.A.S.s are all for training reserve personnel. To get the contest set up at any of these bases it's necessary to select a "fifth" weekend some month enabling the station to get in a required full four weekends of training for their "weekend warriors."

Putting all that together means that next year the contest is scheduled for some place in the Midwest on a U. S. Navy air reserve training base and will be set up for a month in which there are

(*Continued on page* 10)

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(*Continued from page 8*)

five weekends. Since the Glenview N.A.S. outside Chicago is so very busy these days, our guess is that the contest may end up in Olathe, Kans., but a raised eyebrow by some Admiral, or the better Exchange set-up in and around Chicago might change all that.

Dying Club? "What does one do to revive a dying club? Two years ago our membership was 18. It is now 3. Our town is doggone backward. Example No. 1. A fellow bought a Half-A engine, flooded it, hooked up the battery and kicked it over once, it backfired and hit him on the finger. He then got very scared: 'Too much power for me.' So he traded it off for comic books. Another chap quit modeling because 'I always get that there dope all over my clothes all the time.' I offered to make him an apron out of a flour sack. He refused. Neither of these belonged to our club, but they represent our modeler stock. A few suggestions for administering artificial respiration to our club will be appreciated. Incidentally, would like to hear from .65 boys," says Doug Dahlke, 322 10th St., Oshkosh, Wis.

Doug, did you get a copy of the last "AT" Model Annual which had a pretty complete article on the care and feeding of model clubs? You can still get a copy from us for 50c postpaid. Be sure and ask for the 1953 edition. In the meantime, a few thoughts. Any chance of getting a permanent meeting place and sponsorship from the local hobby shop, or YMCA, or Boy Scouts, or school shop instructors, or the Plymouth dealer? Have you been to the newspaper with a couple of good-looking models and modelers and requested some coverage of your activity or publicity on your plight? How about the airport—is Steve Wittman still operating out there? Can't he give you a corner of the administration building or hangar for meeting and work space? How about the city recreation department—have you been in to see their craft instructor?

In the meantime, Doug, we're asking all unaffiliated modelers in the area to contact you.

Needs DC-3. Mel Lamb of Lamb Aviation, Box 1499, East Hampton, L.I., N.Y., airport pleads: "Hope you might be able to help me to locate a Cleveland-designed Master Flying Model kit of a Douglas DC-3. There should still be one on some hobby shop's shelf. If there are no kits available, I would be happy to purchase a DC-3 already built up or just the plans for one. I wish to detail this kit for presentation to a friend who owns a DC-3. I have flown all over the Northeast and called dozens of hobby shops to no avail." (*Continued on page 75*)

Clipper Cargo entry by Roger Capwell at Mirror meet. Original 64" wing had McCoy Diesel. Has lifted 19 oz. Hez from Stroudsburg, Pa.

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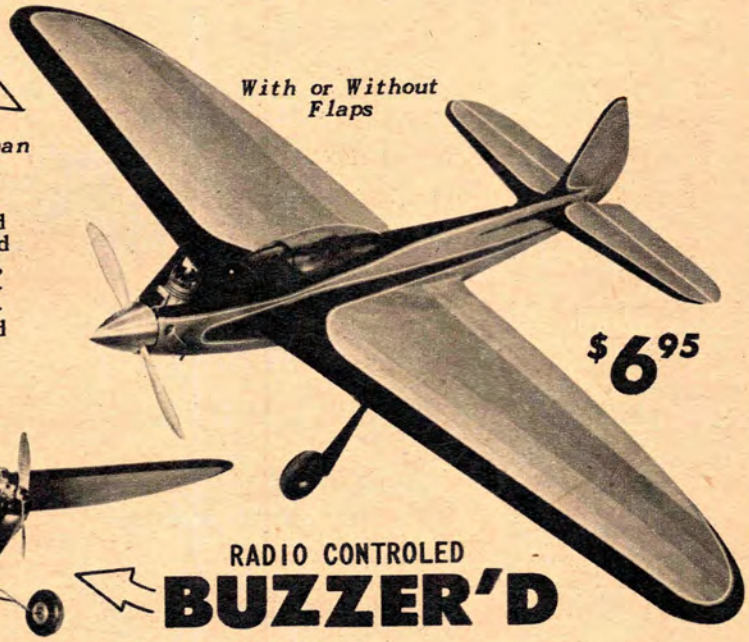

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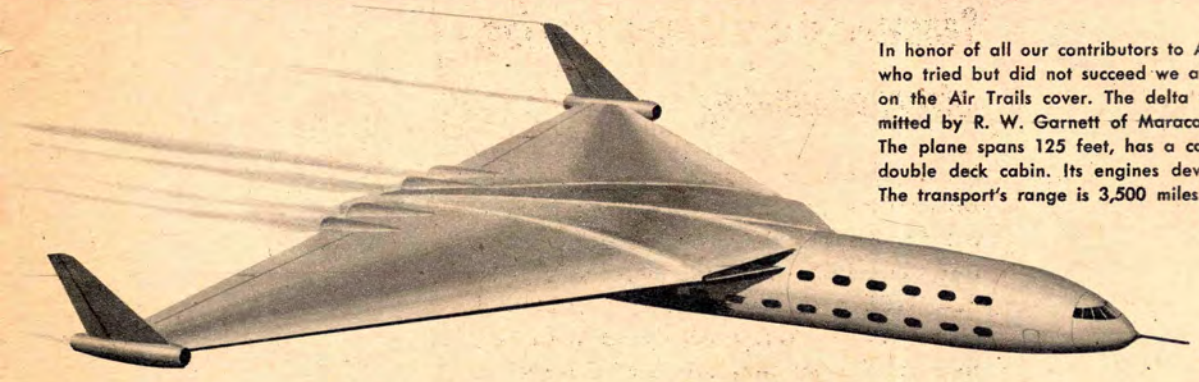
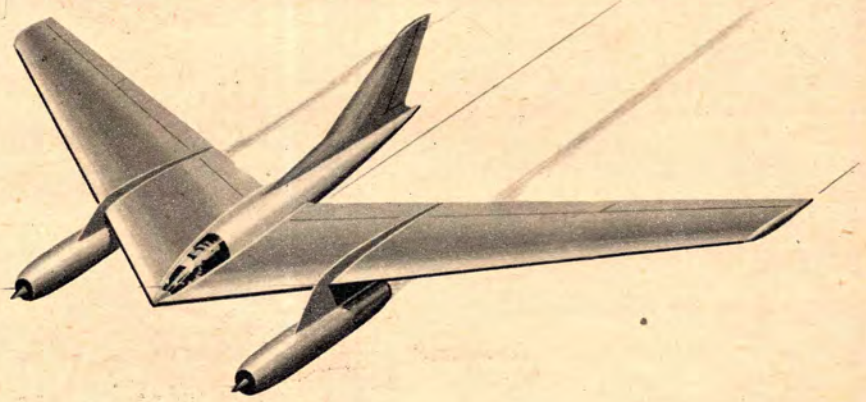


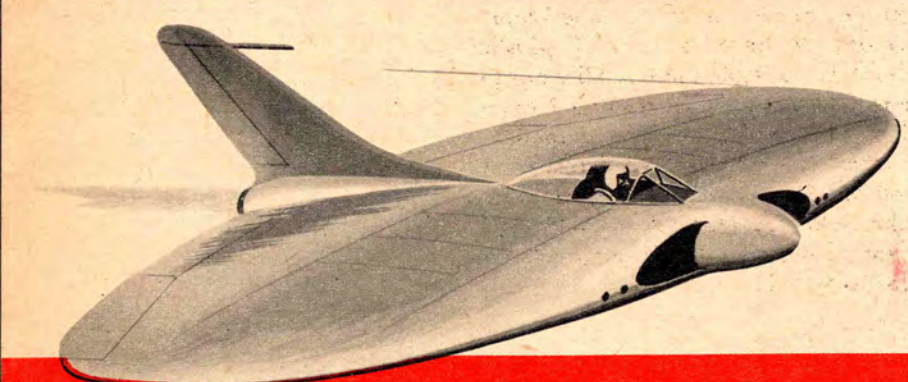
In honor of all our contributors to Airmen of Vision including those who tried but did not succeed we are featuring this month's winner on the Air Trails cover. The delta wing, six-jet transport was submitted by R. W. Garnett of Maracaibo, Venezuela, South America. The plane spans 125 feet, has a capacity of 68 passengers in the double deck cabin. Its engines develop 7,200 lbs. of thrust each. The transport's range is 3,500 miles and maximum speed 550 mph.

2ND AWARD
Ramjet Interceptor

High-speed, semi-flying wing interceptor by Don Dale of Minneapolis, Minn. It is powered by two ramjet engines suspended below the wings, and rockets which give the plane its initial boost and bring it up to speed where the ramjets become efficient. The pilot lies prone in pressurized and air-conditioned cockpit, to give him higher "G" tolerance during maneuvers and to reduce frontal resistance. Wing fences, formed by upward extension of nacelle suspension, slow up the outward progression of stall. Wingspan of the plane is 50 ft., and the top speed around 800 mph.



3RD AWARD
Flying Saucer Sonic Fighter



Design submitted by Lawrence K. Benson, Jr., and Charles R. Howard of New Orleans, La. The Flying Saucer was designed as a day interceptor and fits the modern concept of the very light, simple but effective fighter with minimum of electronic equipment, cheap in price and easy in maintenance. The wing shape is interesting. It is circular, which gives plenty of area for a comparatively small span, the span in this case being 24 ft. The engine is a 7000 lb. thrust turbojet assuring the Saucer a maximum of over 750 mph. The range is 850 miles. Armament consists of four 20-mm cannon. Leading edge of wing has slots. Escape hatch in bottom of fuselage.

AIRMEN OF VISION DESIGN COMPETITION

Rules governing the "aircraft of the future" competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8½x11 inches for the entire three views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on the power plant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The design may be of any type: commercial aircraft, military planes, (fighters, bombers, troop transports), planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of $25. Payment of $5 will go to runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Editors regret that due to large number of entries they cannot enter into any correspondence on Airmen of Vision.

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Air Notes

Jets and Copters at Dayton Break World Records

NATIONAL AIRCRAFT SHOW, held at Dayton, Ohio, was virtually an all-military affair. Brig. Gen. Stanley B. Holtoner, Edwards AFB, won the Thompson Trophy for 100-kilometer closed course at a speed of 690.12 mph in an F-86D. A world speed record for 15-km. straightaway course was established by Capt. H. E. Collins, also in an F-86D, who won the General Electric Trophy with the speed of 707.9 mph. Ten North American F-86F Sabrejets raced from Edwards AFB to Dayton in the Bendix Trophy event. Race was won by Maj. W. T. Whisner who covered the 1868 miles at an average speed 603.5 mph, which included refueling stops. Winner of the Indianapolis to Dayton Allison Trophy race in which four Republic F-84G's participated was Capt. Forrest Wilson who averaged 537.8 mph. Capt. Russell M. Dobyns of the Air Force, flying a Piasecki YH-21 helicopter, established two world records for rotary wing aircraft, 22,289 ft. of altitude and 146.8 mph speed.

★ ★ ★

MARTIN P5M-2 (photo above) is improved version of the P5M-1 Marlin with T-tail. High position of horizontal surface keeps it out of the wing downwash and propeller slipstream influence, increases vertical tail efficiency through end-plate effect. . . . ONE HUNDRED THOUSAND DOLLARS paid to North Korean pilot Lt. Noh Keun Suk for delivering MiG-15 jet fighter to USAF is probably what the airplane costs to build in Russia, which is approximately 900,000 rubles.

★ ★ ★

BRISTOL BRABAZON, Britain's and world's largest commercial airliner, will not go into production. Prototype is being dismantled to be sold for scrap.... NORTHROP F-89D Scorpion "Grand Slam" model is world's heaviest armed interceptor. In addition to six 20-mm cannon in nose it carries 104 rockets in two wingtip pods which can be fired in one single volley or in groups. . . . ELECTRONIC speed-indicator on Landing Signal Officer platform of carrier accurately measures approach speed of airplane, greatly reduces landing accidents. Device is manufactured by Raytheon . . . AIR FORCE is having a number of its B-47 six-jet bombers converted as tankers and redesignated as KB-47's. . . . STATE OF NEW YORK has ten heliports. . . . DOUGLAS D-558-II Skyrocket research plane piloted by Marine Col. Marion Carl reached an altitude of 83,235 ft. (16 miles), highest man has ever flown.

★ ★ ★

DURING Society of British Aircraft Constructors' air show at Farnborough, England, Hawker's test pilot Neville Duke reached speed of 726.7 mph on one occasion, flying the Hawker Hunter fighter; day or so later he established a new world speed record over 100-km. closed course of 709 mph. Spectators at Farnborough amazed by performance of crescent wing Handley Page Victor, especially at its low landing speed. Gasp-inspiring demonstration of English Electric Canberra powered by the new Rolls-Royce R.A. 14 turbojets of 10,000 lb. thrust each. Plane gained 3000 ft. altitude long before it reached end of 9000-ft. runway.

★ ★ ★

PIASECKI'S new huge helicopter, YH-16, publicly unveiled. Fuselage length is 78 ft. Can accommodate 40 troops, or 32 litter patients or three jeeps. Two versions are under construction. First powered by two 1650 hp Pratt & Whitney radials, second will have two Allison T-38 shaft turbines.

★ ★ ★

The BRITISH think they have licked the problem of wingtip twist in swept-back planes, which bend upwards under airloads, losing incidence and acting like "up-elevator," in their new "isoclinic" wing. It is flexible instead of being stiff, has all-moving tips which serve both as ailerons and elevators, and which impose little torsion on the rest of the wing. Wing is being tested on special research airplane, the Short Sherpa. . . . U.S. MARINE SQUADRONS are getting North American FJ-2 Furies, naval version of the F-86 Sabre. . . . CONVAIR C-99, world's biggest cargo plane, based on B-36 design, crossed the Atlantic on a round trip from Kelly AFB to Rhein-Main, Germany and back, carrying 61,000 lbs. of cargo.

★ ★ ★

IMPULSES from powerful radar can be dangerous to health, according to the Navy. Steel wool has been ignited by it, photo-flash bulbs fired and even small animals killed. There were also several incidents wherein humans working close to the sets were injured. . . . CANADIAN Pacific Airlines took delivery of two Douglas DC-6A Liftmaster cargo transports. . . .

★ ★ ★

CESSNA'S twin-jet trainer, still in mock-up stage, will be designated T-37. . . . PHOTO below shows a very clean and neat midget racer or sportplane built for Ron Beattie and Walter Fellers by the Acme Aircraft Shops, Torrance, Calif. It is powered by a 190 cu. in. Continental engine of 85 hp, same that powered the little racers of Goodyear and Continental fame. Of exceptional interest is the location of the propeller, behind the tail surfaces, giving an unobstructed airflow over the wing. If no trouble is experienced with the drive shaft, this airplane should be definitely in the 300 mph class. Unfortunately the cessation of air racing in this country will prevent this little airplane from showing its full worth in competition.

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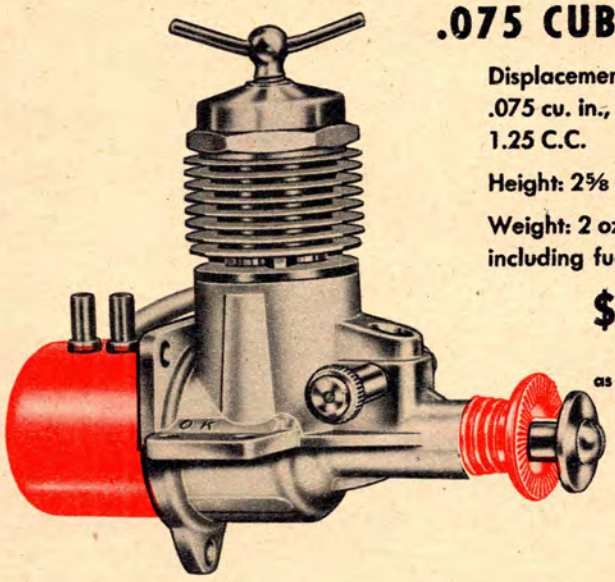

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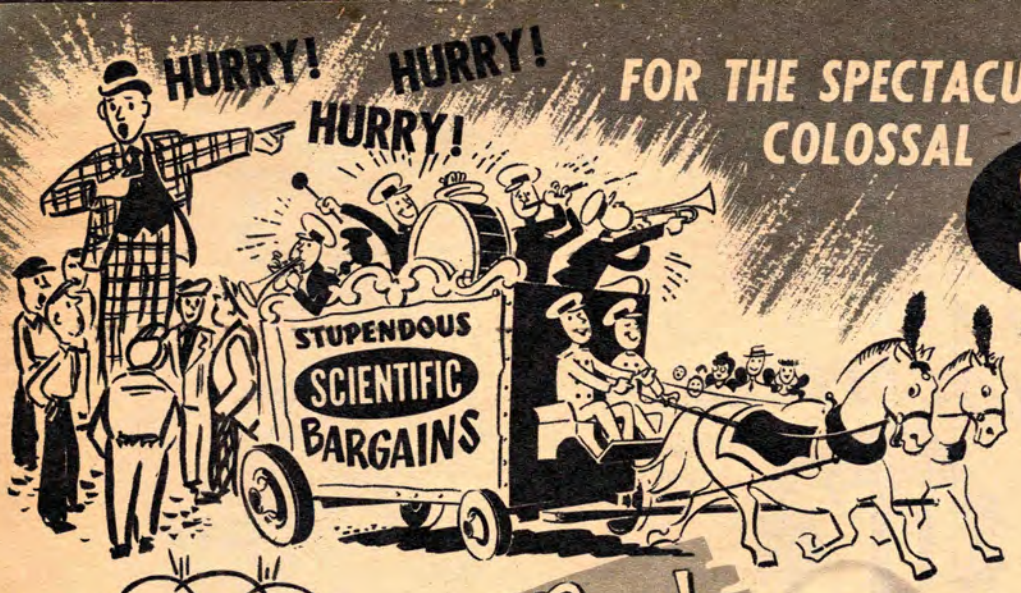

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Every inch a champion! This deluxe Scientific model is an authentic replica of the U. S. Army's famous "Hawk" fighter. The control-line bi-plane model lives up to its prototype in both flyability and appearance. The 100% complete kit is precision prefabbed for easy assembly . . . contains all the big quality features you want — carved balsa fuselage, formed balsa wing, struts and tail assembly, metal drag ring, rubber wheels, 3-color decals, pilot head, hardware, etc., etc.

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BOEING F4B-4 $2.95
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BOEING P-26A $2.95
SPAN: 18" For .020 to .074 Eng. The U.S. Army's first all metal pursuit plane. A deluxe U-Control flyer. Prefabbed kit is 100% complete . . . all parts finished.

LITTLE SABRE $1.95
SPAN: 18" For .020 to .074 Eng. In honor of the F-86 (Sabre Jet). U-Control model with all parts precision cut and shaped for easy assembly. A real honey!

BEECHCRAFT "17" $2.95
SPAN: 16" For .045 to .099 Eng. A really beautiful deluxe control-line model. Prefabbed kit has carved balsa fuselage, formed balsa wings, metal cowling, etc.

LITTLE MUSTANG $1.95
SPAN: 18" For .020 to .074 Eng. Famous escort fighter model. Completely prefabbed. Features carved balsa fuselage, formed balsa wing, etc., etc.

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BEGINNERS . . . come join the control-line flying "parade" with this thrilling action model. It's NEW! It's exciting! Specially designed so that it's EASY TO BUILD . . . EASY TO FLY! The model is a scale reproduction of America's favorite private plane. It's an excellent performer . . . responding quickly and easily to the controls. The completely prefabbed kit, which features Jim Walker's U-CONTROL for the popular small bore engines, has EVERYTHING! Included: completely carved balsa fuselage, formed metal cowling, airfoil shaped balsa wing, tail assembly, formed wire landing gear, hardware, wheels, decal, etc., etc. Sensationally priced at a low..... **$1.50**

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Sensational! "Terrific" . . . that's what we hear from modelers coast-to-coast about the snappy LITTLE MERCURY! It's an extremely popular model . . . one that will please your flying tastes as well as your pocketbook. The completely prefabbed model features Jim Walker's U-CONTROL for small bore engines. The kit includes: carved balsa fuselage, shaped and formed balsa wing and tail assembly, plastic pilot and windshield, formed landing gear and aluminum parts, wheels, decals, hardware, etc., etc. Bargain-priced at only..... **$1.50**

18" WINGSPAN FOR .039 TO .074 ENGINES

You're the envy of the crowds when you're behind the controls of this exciting action model. Designed for speed, sport or stunt flying, the BEL AIR is one gas model that gets the most out of any small bore engine. You'll love this sensational deluxe model. It's 100% complete — 100% prefabricated. Every part is cut, formed or shaped . . . satin smooth finish. Kit includes: completely carved balsa fuselage, formed hollow balsa wing, balsa tail assembly, formed cowling and aluminum parts, hardware, rubber wheels, decals, etc., etc. Here's a spectacular performer for only..... **$2.95**

18" WINGSPAN FOR .039 TO .099 ENGINES

LITTLE DEVIL $1.50
SPAN: 18" For .020 to .074 Eng.
An economically priced U-Control model. Easy to build and fun to fly. Prefabbed parts include: carved balsa fuselage & wing, etc.

BUCKEYE JR. $3.95
LENGTH: 14" For .020 to .074 Eng.
Full speed ahead for thrills with this "beaut" of a speedboat. Prefabbed model is 100% complete—carved balsa hull, brass fittings.

RIVIERA $3.50
For "½ A" Eng., Electric Motors
Authentic Chris-Craft replica with a 12" carved balsa hull and brass metal fittings. All parts finished. Completely prefabbed model.

SEA HAWK $2.50
"½ A" Eng., CO_2, or Elec. Motors
Features our exclusive aeronautical fin and rudder design. Prefabbed model has a 12" carved balsa hull, brass metal fittings, etc.

BUCKEYE SR. $4.95
LENGTH: 17" For .099 to .29 Eng.
Our deluxe speedboat, the last word in speedboating thrills. 100% complete . . . super prefabbed. Features precision finished parts.

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Pratt-Read two-place sailplane owned and operated by Sail-Flights, Wurtsboro, N. Y.; group has three gliders which are available for rent.

Sailplane Parade

■ A Sunday traveler driving through the mountainous section of New York State was passing a small grass airport nestled against a ridge. A casual glance at the airfield brought him to a sudden stop. For there lay what appeared to be the results of a horrible crash. Two long wings severed from the fuselage rested on the ground and the fuselage itself reposed on its side. Around it stood an unconcerned crowd in jovial conversation. Shocked by such callousness, our traveler jumped out of the car and ran over to the group. "What happened here?" he shouted. "Anybody hurt, need any help?" "Nah," replied a husky young fellow, "that's no accident. We're just getting ready to assemble our new sailplane that was delivered this morning."

Gliding and soaring, the art of motorless flight, so popular in Europe, is actually little known to the layman in this country. The United States has had a small though well-developed soaring activity ever since 1928, which started on the sand dunes of Cape Cod, Mass., and in the vicinity of San Diego, Calif. It had its ups and downs in the early stages, mostly due to lack of organization and proper supervision, which resulted in a number of fatal accidents. One pilot was killed when he had his primary glider towed by a Curtiss P-6E fighter, other bad accidents resulted when totally inexperienced persons attempted to fly gliders under the erroneous assumption that because of their light weight and lack of engine no previous training was necesasry. But despite the false start the movement survived and progressively grew stronger.

The organization of the Soaring Society of America in 1932 brought order out of chaos and put motorless flight in this country on a sure footing. The Society, whose headquarters are at Elmira, N. Y., the soaring capital of America, publicizes gliding and soaring, sponsors regional and national meets and compiles and approves all soaring records by special arrangement with the National Aeronautic Association. The latter is the U. S. representative of FAI (Fédération Aeronautique Internationale), international governing body for sporting aviation. As its representative, the Society awards the FAI proficiency badges, the circular blue lapel buttons with one, two or three white gulls, some plain, some surrounded by silver or gold wreath which denote the accomplishments of each pilot.

The A and B badges (one and two gulls) are not awarded in the United States; they mean that the holder is only a beginner, having successfully accomplished straight glides and 360 degree turns. The C plain blue circle with three gulls is the stepping stone to soaring. To earn it the pilot must remain in the air not less than five minutes at an altitude higher than that at which he released from tow. The Silver C, three gulls in blue circle surrounded by a silver wreath requires a duration of not less than five hours, altitude gain of at least 3280 feet and a cross-country soaring flight of 32 miles or more. The Golden C (gold wreath around the C) requires a flight of 186½ miles and a gain of 9843 feet in altitude. When you see one diamond inserted into the golden C button you know the wearer is of championship stock; one diamond means he has soared a distance of 311 miles and gained 16,404 feet of altitude; a 186½ mile flight to a predetermined goal permits him to insert a second diamond into his badge.

Erroneously, these badges are often called licenses, which they are not as they do not bestow the privilege of piloting a sailplane or a glider. This privilege is given by the CAA after the applicant has passed written and flight tests, just like powerplane pilots. There are three CAA glider ratings, student, private and commercial glider pilot. The student rating can be obtained by anybody of sound health and limb who has reached the ripe age of 14 years by applying at the regional CAA office. No aeronautical knowledge is required. It is a permit to take instructions and to fly solo in order to get sufficient experience for the higher grade licenses. In order to be eligible for private pilot rating the applicant must be at least 16 years old, have 100 solo glider flights or 10 hours time including not less than 50 flights, 25 flights of which must include 360 degree turns. He must also pass a written test on CAA regulations, and a test flight. With this ticket he can take his friends for a ride, provided he does not charge them, though they may split expenses. For commercial glider pilot's rating he must have (*Continued on page* 72)

Old and new. Behind the all-metal Schweizer 1-23 stands trailered Minimoa of 1934 vintage. Ship was at Elmira, but did not fly in Nats.

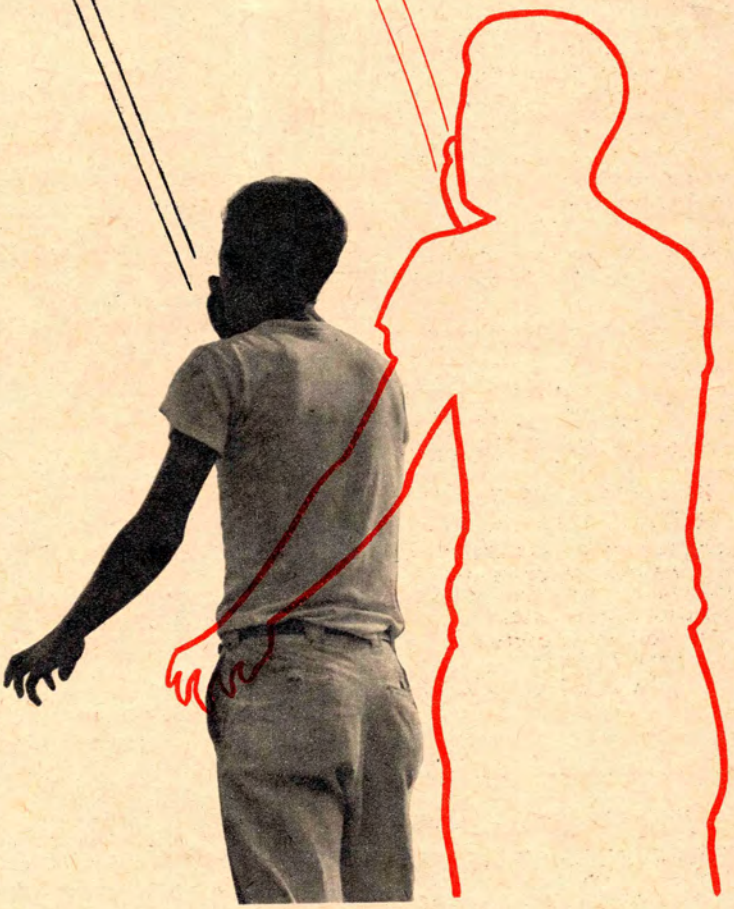
PUT YOURSELF IN THIS PICTURE...

Just take the controls of an A-J Firebaby and you'll know what we're writing about. Feel the tug of the engine as your plane strains to leap into the air . . . feel it respond to every movement of your wrist as it streaks for altitude . . . know the thrill of a full power dive . . . and how easy it is to do stunts!

Flying is easy with an A-J Firebaby. Buy it ready to fly, complete with engine, controls and lines; all parts finished, painted and fuelproofed. Span 19 in., wt. 3 oz. Available with or without engine, single wing or biplane.

With engine, as low as **$7.85**

Without engine, from **$2.50**



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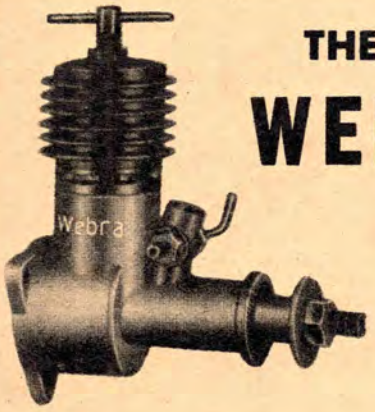

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MIDWEST MODEL IMPORTS
24 Choate Road, Park Forest, Illinois

You Ask "AT" answers

Henschel 129 . . . I would like to know if during the last war the Germans had an anti-tank plane, the Henschel 129. If so, I would like some information on it.

Richard Mlynarek, Detroit, Mich.

● The Henschel Hs. 129 was a twin-engine monoplane designed especially for ground attack. It first went into service in 1942 against the Russians. It was powered by two French-built Gnome-Rhone radial engines of 800 hp each. The armament varied, consisting of .50 caliber machine guns and cannon of 30 and 20 mm. Some models had experimentally mounted smooth bore tubes mounted at an angle in the fuselage to fire downward. These tubes were recoilless guns especially designed for tanks and were triggered automatically when the plane flew low over a tank. Span of the Hs. 129 was 44 ft. 6 in., length 33 ft. 3 in. Top speed around 275 mph.

Mustang or Messerschmitt? . . . I have an argument with a friend about which is faster, the P-51 Mustang or the Messerschmitt Me. 109. Which is?

Billy Martin, Evans, Colo.

● Late model of the Me. 109G had a top speed of 430 mph at 24,000 ft. North American Mustang F-51H at same altitude topped 450 mph.

J-57 Turbojet . . . What planes, other than the B-52, are powered by the P&W J-57 turbo-jet engine? Are these available in any solid model kits for the B-52 or any other aircraft incorporating the J-57?

Edward S. Anderson, Chicago, Ill.

● Only other airplane powered by P&W J-57 besides the Boeing B-52 at the present time is the North American F-100 Super Sabre. The Convair XF-102 delta wing fighter now under construction is also supposed to be powered by two of these engines. There are no solid scale models of B-52 on the market available at the present time.

Pilots and Eyeglasses . . . Could you tell me whether or not men with corrected vision are accepted for pilot training? I had hopes of becoming a pilot until recently I was told I needed glasses. Now I am not sure whether to continue to aim to become a pilot or to seek to enter another field of aviation.

James Buttimer, Utica, N. Y.

● Wearing glasses will prevent you from becoming a military pilot, but not necessarily a civilian one. Suggest you consult a CAA Medical Examiner whose address you can obtain at your local airport.

Barrelful of Questions . . . I've a barrelful of questions to ask you. Some of them just call for your opinion. First off, there's been quite a discrepancy about the Starfire. Our club has seen planes go by that are similar to the Starfire, and they say it is. I always understood that the Starfire had a completely sweptback tail wing. The planes we've seen have only a sweptback leading edge on the tail wing. What is it?

Do you think the Navy's AF is as good as the USAF?

Comparing the Cutlass to the F-90, which is best? If you have no statistics please state your opinion. (F7U-3 Cutlass).

Could you explain how a Panther jettisons its fuel? We've seen it happen but we don't understand it thoroughly.

Quite a while back I saw a mock battle between three Sabres and two Cougars. They'd come real low, then climb like mad, twisting and looping, they were really swell. Then all of a sudden the two Cougars darted out towards home. Two Sabres followed for a while and then turned around to head for home. This wasn't at an air show or anything. Could you say why they were doing it?

Last of all, could you send a list of all the jets that operated in Korea?

Jim Boyle, Castro Valley, Calif.

● All F-94 type airplanes, whether A, B or C, are called "Starfire." The ones you have seen are either F-94A's or B's.

The Naval Air Service is as good as the

(*Continued on page 81*)

MONOGRAM Deluxe Speedee-Bilt Models

Everything Completely Finished • All Ready for Quick Assembly

For the Thrill of a Lifetime
Build One of These

Twin Engine Bombers

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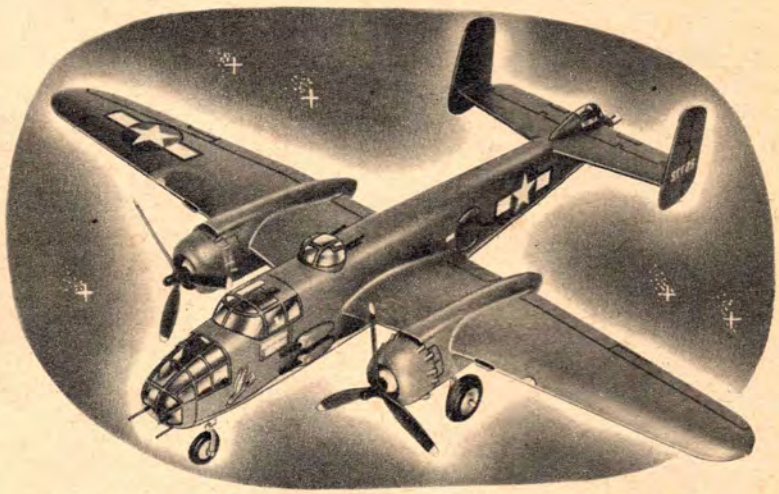
IN THESE KITS



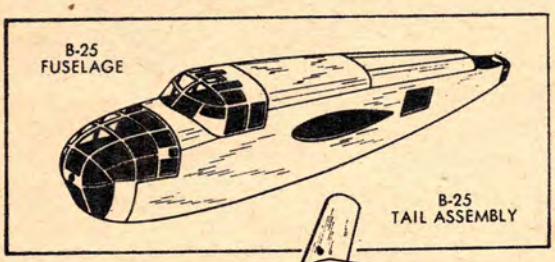
B-25 • MITCHELL • $2.95

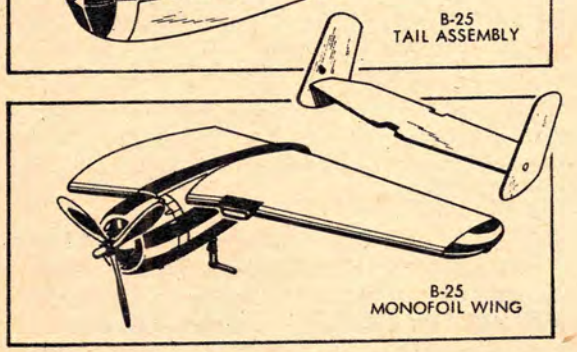
One of the most famous and most versatile medium bombers of all time. Brought into greatest fame by General "Jimmy" Doolittle in the air raid on Tokyo in 1942. Picture above is photograph of an actual Speedee-Bilt model. Kit H1. $2.95

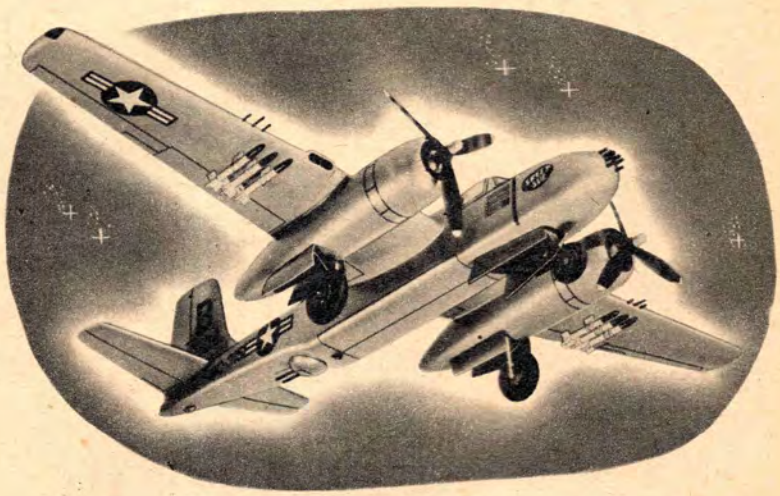
Super Detailed Plastic Parts! All-Finished Balsa Parts! Fit Together Like Magic!

Every fan wants a bomber model. And here are two of the finest you ever saw and both with famous names. Always hard to build before, mainly because of the engine nacelles, bombers are now as easy as pie with the new Monogram deluxe kits.

The nacelles, like every other part, are completely finished. All parts are molded plastic or perfect-shape, smooth balsa. Now you can build a bomber easier than you ever built a single engine model. And you'll have more fun doing it.







B-26 • INVADER • $2.95

The Invader was the fastest of all attack bombers in its day back in World War II. It had speed, heavy fire power and high bomb capacity and even gave a good account of itself in the recent Korean conflict. This is a photograph of an actual Speedee-Bilt model. Kit H2. $2.95

Just Like Magic!

Here you see some of the 84 or more plastic and finished balsa parts included in each of these kits, and see how they fit together. Note how precision-cut sides, perfectly shaped cowl blocks and clear plastic nose and canopies blend with each other to form this perfect B-25 fuselage. See how the plastic nacelle slips over the amazing hollow balsa Monofoil wing. See too, how plastic wing tip, air intake, prop, engine cowling and landing strut fit for easy assembly. In the center—three finished balsa parts snap together to form the tail assembly. With these kits, you don't have to make or even shape parts. Every part is ready for you to put the model together and have a barrel of fun.

Never Before Such Kits as These! Packed With Real Assembly Fun—Start to Finish

No matter what your experience in model building is, you have never seen such kits as these. Never before such engineering design—such minute detail—so many fascinating innovations—so many finished parts—so many unusual features—such easy assembly. You must see the new B-25 and B-26 kits to know how fine a model kit can be. Do it today.

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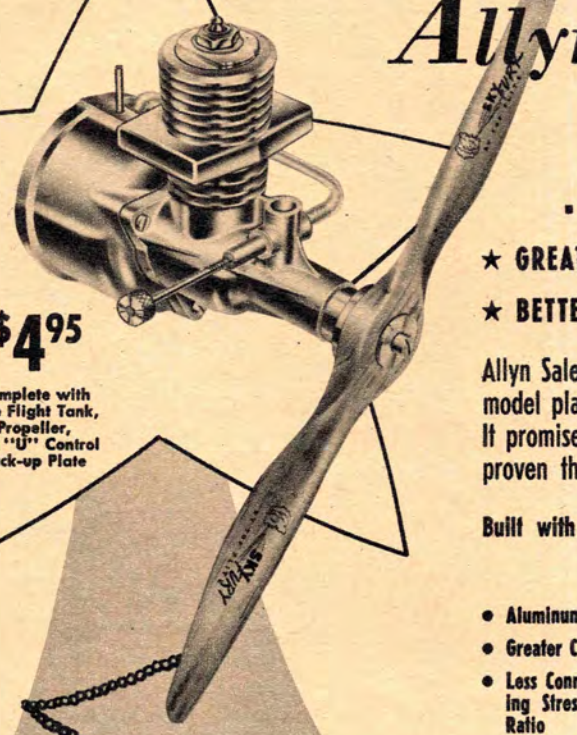
.049—½A ENGINE



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Complete with Free Flight Tank, Propeller, and "U" Control Back-up Plate

★ GREATER RPM (up to 20,000) ★ MORE HP

★ BETTER PERFORMANCE ★ QUICKER STARTING

Allyn Sales Company, who has long led the field in quality plastic model planes, is introducing for the first time the SKY FURY .049. It promises to be a sensation in the ½A class. Test after test has proven that it will out-perform other engines in the same class.

Built with the DETAIL and PRECISION found only in LARGER MODELS

CHECK THESE FEATURES

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- THIS MEANS TO YOU — Greater performance and longer engine life

WHAT A GIFT!

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All Allyn model kits are built true to scale and color, and are complete with decals of insignia. They are the finest plastic kits available. Illustrated are the Douglas Navy Skyknight and the Convair Delta Interceptor . . . $2.49 ea. There are 8 other models to choose from:

Douglas Navy Skystreak .	$1.79	Douglas Navy Skyraider	$2.49
Douglas Navy Skyrocket .	1.79	Boeing Stratocruiser . .	2.49
Douglas C-124 Globemaster	2.49	Boeing Stratofreighter .	2.49
Douglas Navy Skyshark .	2.49	Boeing B-47 Stratojet . .	2.49

WAGONS OF THE "OLD WEST," another splendid line of Allyn kits made of the best California Redwood and Pine and the same careful workmanship. Each kit comes with pre-assembled wooden wheels and all nails and wire necessary to complete the model. Illustrated is the Conestoga $3.89

Also available:

Covered Wagon	. . . . .	$3.89
Stage Coach	. . . . .	4.49
Ranch Wagon	. . . . .	3.49
Oxen, Horse or Mule Teams	. . per kit	3.95

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came the AIRPLANE, that was born of craftsmanship, skill and painstaking research

The sign on the small store in downtown Dayton read "Wright Cycle Co." Here was produced the excellent Van Cleve high-wheel bicycle.

Historical significance lay not in the product advertised on the sign but the name of the owners, Wilbur and Orville Wright.

These two talented young men, often and erroneously called "dreamers" by the press, had a long string of achievements to their credit, not the least of which was the building and flying of kites of superior performance to any in Dayton. They also constructed their own printing press and on it turned out a successful newspaper. Thus, when their interests turned to flying, they had already an unusual mechanical and aeronautical background.

The Wright brothers embarked on their new airplane venture with caution. Not only did they read and discuss all printed works available on the subject at that time, but they conducted a score of practical experiments in the field of flight with a wind tunnel of their own design. From these studies they soon detected flaws in earlier theories by others which caused the pair to strike out on their own. When 50 years ago on December 17, 1903, the Wright biplane rose from the sand dunes of Kitty Hawk, it carried with it the best engineering skill and creative talents aviation has ever known.

Capt. A. Roy Brown

Baron Manfred von Richthofen

Lt. Wilfrid "Wop" May

The Day The

How a chance meeting between two school friends on the battlefield of France sealed the doom of Germany's greatest ace—a true story based on data revealed by Canada's late, great Wilfrid May

■ The slim, blond young man stepped into the office of Major Butler, C. O. of No. 209 Squadron, R. A. F., snapped to attention before the major's desk, saluted and smartly announced, "Lieutenant Wilfrid May, reporting for duty, sir!"

Butler stared up at May. His brows bulged downward and his features slowly darkened. "Reporting for duty, lieutenant?" he asked quietly but with deliberation. Then he exploded. "You are *not* reporting for duty! Not to this squadron! You were due here three days ago! Where have you been? . . . Never mind!" he interrupted the other's attempt to explain. "I can guess! *Carousing* —while the cursed Jerries are shooting down. . . . It's back to the pilots' pool for you! Dismissed!"

A bewildered May paused outside in the Orderly Room to pull himself together. He had anticipated a severe dressing down for his failure to report on time, but not a humiliating rejection and return to the pool without a chance to prove his combat worth. Morosely he stared out a window at the array of small canvas Armstrong huts, quarters for the officers, the weatherbeaten mess tent, and the huge canvas Bessaneau hangars. *Here is where I was supposed to get my chance. . . .*

"*Wop!* Wop May!" A hearty voice suddenly cracked out. He snapped around, surprised, and then yelled in wide-eyed amazement, "Roy! Well I'll be—!" The men lunged at each other, laughed and pounded each other on the back. "Roy" was Captain A. Roy Brown, a flight leader in 209 Squadron and an old schoolmate of May's back in Edmonton, Canada.

But this was not the Roy he had known. This man was lean, drawn. His face was criss-crossed with fatigue lines that sprang from the tension of too many missions; too many nerve-stretching, whirling combats. He tried to explain what the squadron was going through because of the relentless spring drive of the enemy throughout the Somme region these April weeks of 1918. The constant shifting of base, the lack of pilots to cope with the job . . . He broke off, laughing suddenly.

"What a ruddy fool I am! Trying to make a new pilot feel at home with *that* kind of talk! Tell me, to what flight did the major assign you?"

May colored slightly, and his chuckle was rueful. "He didn't assign me to any, Roy. Matter of fact, I'm not going to be with 209. . . . You see, the driver who came down in the tender from the squadron to pick me up at the pool was a good chap. Well, we stopped at one or two roadside estaminets for a few quick ones, then another estaminet. . . . Anyway, we arrived here three days late, and Major Butler refused to accept me. He is transferring me back to the pool."

Brown looked serious. "The C. O. can be a hard one. And he's rarely in a gentle frame of mind these days. Been going day and night. Doing his share of flying, too. But I can try," he decided cheerfully. "Wait a mo."

He must have been eloquent, for he

not only persuaded the major to permit "Wop" May to remain with No. 209, but he also succeeded in having the newcomer assigned to his flight.

Curious, this accidental meeting of two old school friends; a link in a chain of circumstances that would ultimately lead to the death of another young man, a very famous young man, the Baron Manfred von Richthofen.

A veteran of eighteen months' active flight duty, with twelve official victories any many unconfirmed ones, Brown had haunting memories to remind him that the first few weeks at the front were the most dangerous for a pilot. He had seen too many promising men knocked down during this period through sheer inexperience.

May, he discovered, was one of a group of airmen whose advanced training in England had been abruptly terminated because pilots were desperately needed in France to replace those lost in action above the Somme.

To remedy this lack of pre-combat experience, Brown took the fledgling under his wing and put him through a realistic course of intensive instruction, emphasizing gunnery and aerobatics. In addition, he escorted him over the front lines to accustom him to anti-aircraft fire and to enable him to gain experience in judging Allied and enemy terrain and special landmarks, and, of utmost importance, to acquire "sky-vision"—that ability to quickly discern an aircraft, friendly or enemy, cruising within sight-range.

May is a natural pilot and an excellent student. He learns rapidly and quickly settles into the squadron life. And then the day arrives; his mentor decides he is ready to join the flight on regular combat patrols.

It is April 21, 1918; a chilly, sunny Sunday morning. There is that ages-old feeling of renewed life in the crisp, spring air; but there is also winged death, quick and rapierlike, sitting quietly upstairs, waiting.

May senses nothing but those qualms that flutter the stomachs of all warbirds preparing for their initial combat flight. He is young, cocky and impatient. Brown is a sick, tired, old young man, wishing he could keep a solid meal in his stomach.

Twenty-odd miles away, on the other side of the lines, just outside the village of Cappy, a straight-backed, blue-eyed, blond pilot jokes easily with his staffel mates. Captain von Richthofen, Germany's brilliant ace of aces, is well-rested, calm, confident; the eightieth plane to fall before his guns had gone crashing to earth yesterday.

He and his men are on alert; their finely tuned planes are at the ready. Presently a telephone will jangle and word will flash through that the enemy is aloft. Meanwhile, they relax in the weak sunlight and talk of inconsequential things.

Back at Bertangles there is hustling activity on 209's field. Camel after Camel is wheeled forth from the hangars. Ground crews swarm over them. Clerget rotary engines break into life, coughing and barking unevenly. Black-snouted machine guns are checked.

Major Butler calls the pilots together and briefs them for the patrol, explaining that they are to fly up and down the front from Hangaard north to the Amiens-Albert road, on the east, or German side, of the Somme battle line.

For the first time, No. 209 is going out en masse to seek the enemy. Large formations are new to the British; the introduction of mass flights of from twenty to sixty machines by the enemy has forced them to take similar measures. But the men of 209 are not too happy about it; accustomed to flying in tight, maneuverable teams, or flights, of five planes, they view the new squadron-formation as a cumbersome unit, too unwieldy for swift movement.

Butler dismisses the men and they scatter to their planes. Brown, who has been designated to lead the patrol, walks beside May.

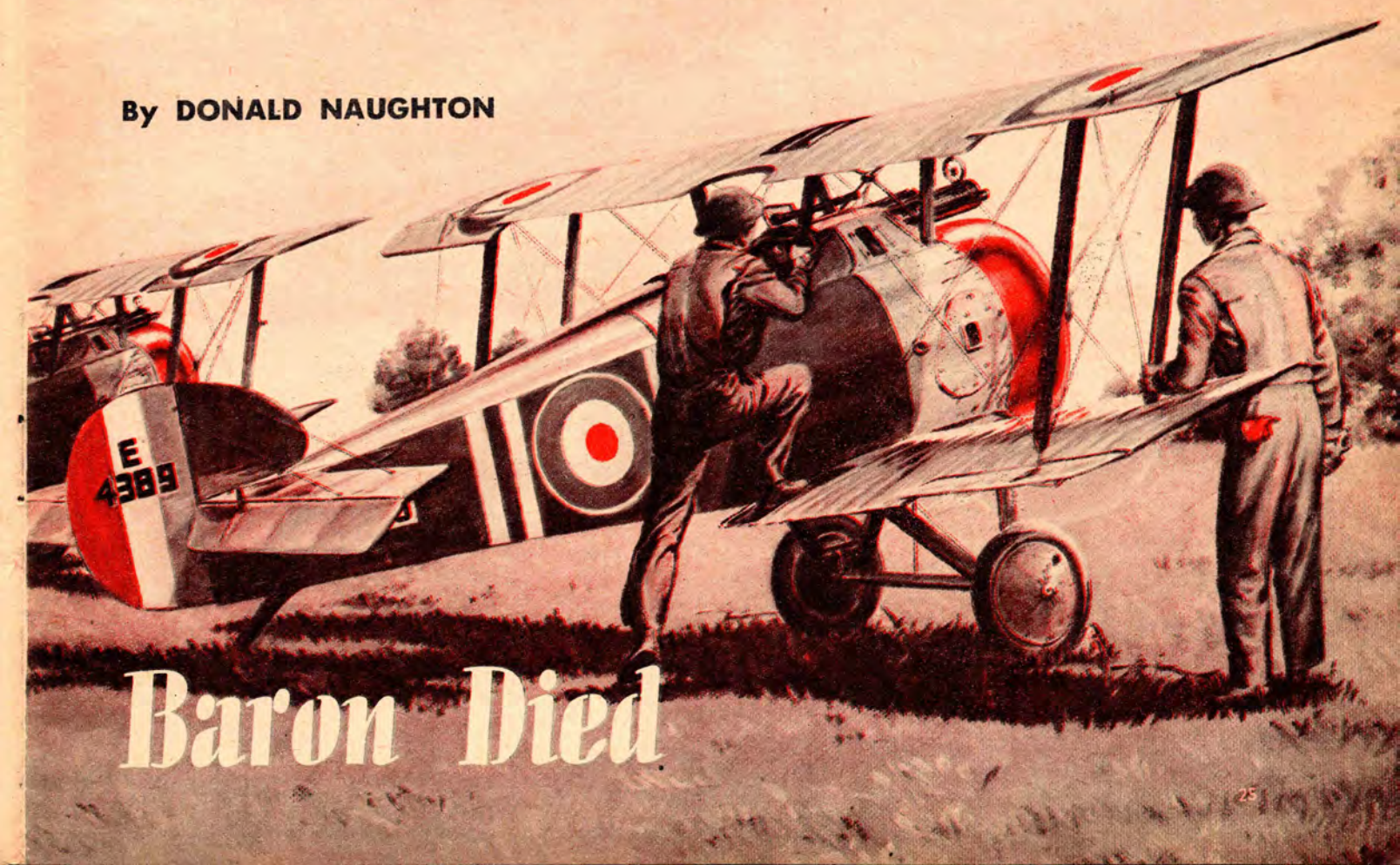
"Wop," he says slowly, emphasizing each word, "I don't want you to take any unnecessary chances today. We may tangle with the Jerries; if we do, stay clear. Get the feel of what's going on. If you do have an opportunity to pick off one of them, remember: dive on him, give him a burst, and keep on going—straight home! If you down an e. a., swell! If you don't, and run for home, nobody is going to hold it against you! *Remember!* Don't attempt to join in the general engagement!"

With that, Brown wishes him luck and hikes over to his plane.

At 9:35 a.m., one after another, the stubby Camels raced across the hard-packed surface of the field, lifted into the sharp air, (*Continued on page* 48)

Baron Died

By DONALD NAUGHTON



AIR PROGRESS

By DOUGLAS ROLFE

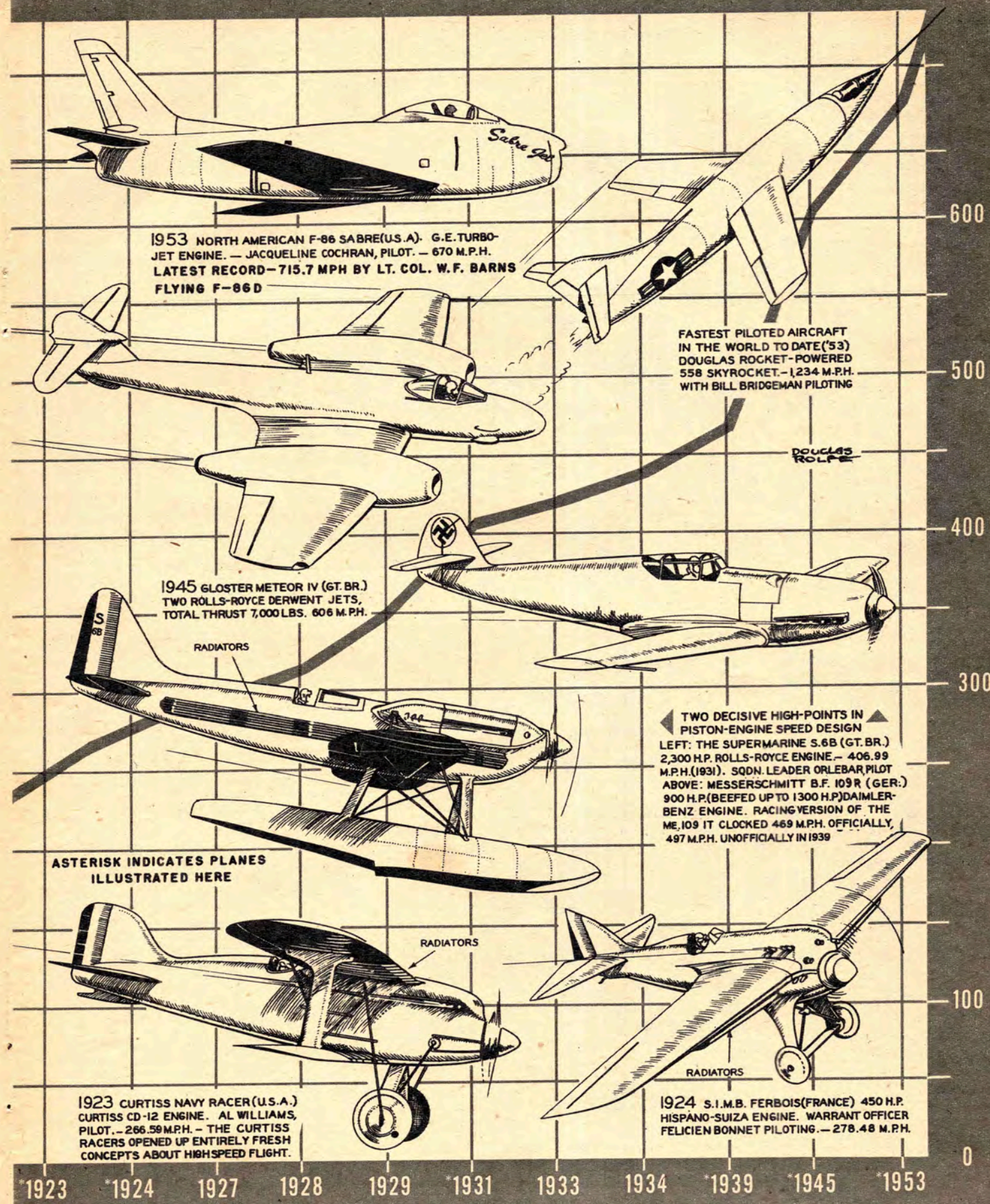
The Quest for Speed

M.P.H.
500
400
300
200
100
75
50
25
0
YEAR
1906
1907
1909
1910
1911
1912
1913
1920
1921
1922
LATER EQUIPPED WITH BALANCED AILERONS BUT AT THIS TIME WITH NO PROVISION FOR LATERAL CONTROL
14 bis
NOTE LOCATION OF AILERONS ON FRONT WING STRUTS IN CONTRAST TO USUAL CURTISS PRACTICE OF HINGING THEM TO REAR STRUTS
1906 SANTOS-DUMONT (VOISIN BUILT) (BRAZIL) ANTOINETTE V-8 25-50 H.P. ENGINE. — SANTOS-DUMONT PILOT. — FIRST OFFICIALLY RECORDED AIR SPEED WAS CLOCKED IN FRANCE AT 25.7 M.P.H.
1909 HERRING-CURTISS (U.S.A.) 50 H.P. CURTISS 4-IN-LINE LIQUID-COOLED ENGINE. WINNER OF WORLD'S FIRST INTERNATIONAL AIR RACE (RHEIMS, FRANCE, 1919). AVERAGE SPEED OVER A CLOSED COURSE WAS 43.4 M.P.H.
NIEUPORT BROS. WERE PIONEERS IN DOPED COVERING, MODERN AIRFOIL SECTIONS
1911 NIEUPORT (FRANCE) 28 H.P. NIEUPORT FLAT TWIN LIQUID-COOLED ENGINE. — PILOTED BY EDOUARD NIEUPORT THIS LITTLE MONOPLANE UPPED SPEED RECORD TO 80 M.P.H. - A CREDITABLE PERFORMANCE FOR THE TIME AND THE POWER
PLYWOOD MONOCOQUE FUSELAGE COMPLETELY ENCOWLED ENGINE
1913 DEPERDUSSIN (FRANCE) 160 H.P. TWIN-ROW, AIR-COOLED, ROTARY RADIAL ENGINE. WITH MAURICE PREVOST AT THE CONTROLS THIS WAS FIRST PLANE IN THE WORLD TO EXCEED 2 MILES PER MINUTE. (126.67 M.P.H. ON PYLON COURSE)
1920 NIEUPORT-DELAGE (FRANCE). 400 H.P. HISPANO-SUIZA ENGINE. PILOTED BY SADI-LECOINTE IT SET A NEW WORLD RECORD OF 194.5 M.P.H.
1922 CURTISS ARMY RACER (U.S.A.) 375 H.P. CURTISS D-12 ENGINE. HIT 222.97 M.P.H. TO RECOVER SPEED RECORD FOR THE U.S. BRILLIANT PILOT ON THIS OCCASION, GEN. MITCHELL

With the airplane celebrating its fiftieth birthday this December, it is fitting to look over what man has accomplished in the way of air speeds. All the figures quoted on these pages are taken from officially recorded world's speed records and present in graph form the astonishing mounting curve from 1906 on.

Superimposed against the speed graph are a few of the more important designs which contributed to the record. Actually close to 500 miles per hour speed by the piston engine plane was achieved around 1931. This seems to be about the limit for this type of airplane, although it may be noted that 500 mph speeds are now considered operational for service aircraft, whereas the 1931 high-speed mark was obtained with a special and completely experimental type of racing plane.

The advent of the jet engine has sent the speed of the


Sabre Jet
1953 NORTH AMERICAN F-86 SABRE(U.S.A). G.E. TURBO-JET ENGINE. — JACQUELINE COCHRAN, PILOT. — 670 M.P.H.
LATEST RECORD — 715.7 MPH BY LT. COL. W.F. BARNS FLYING F-86D
FASTEST PILOTED AIRCRAFT IN THE WORLD TO DATE('53) DOUGLAS ROCKET-POWERED 558 SKYROCKET. — 1,234 M.P.H. WITH BILL BRIDGEMAN PILOTING
DOUGLAS ROLPE
1945 GLOSTER METEOR IV (GT. BR.) TWO ROLLS-ROYCE DERWENT JETS, TOTAL THRUST 7,000 LBS. 606 M.P.H.
RADIATORS
TWO DECISIVE HIGH-POINTS IN PISTON-ENGINE SPEED DESIGN
LEFT: THE SUPERMARINE S.6B (GT. BR.) 2,300 H.P. ROLLS-ROYCE ENGINE. — 406.99 M.P.H. (1931). SQDN. LEADER ORLEBAR, PILOT
ABOVE: MESSERSCHMITT B.F. 109 R (GER.) 900 H.P. (BEEFED UP TO 1300 H.P.) DAIMLER-BENZ ENGINE. RACING VERSION OF THE ME. 109 IT CLOCKED 469 M.P.H. OFFICIALLY, 497 M.P.H. UNOFFICIALLY IN 1939
ASTERISK INDICATES PLANES ILLUSTRATED HERE
RADIATORS
RADIATORS
1923 CURTISS NAVY RACER (U.S.A.) CURTISS CD-12 ENGINE. AL WILLIAMS, PILOT. — 266.59 M.P.H. — THE CURTISS RACERS OPENED UP ENTIRELY FRESH CONCEPTS ABOUT HIGH SPEED FLIGHT.
1924 S.I.M.B. FERBOIS (FRANCE) 450 H.P. HISPANO-SUIZA ENGINE. WARRANT OFFICER FELICIEN BONNET PILOTING. — 278.48 M.P.H.
600
500
400
300
100
0
*1923
*1924
1927
1928
1929
*1931
1933
1934
*1939
*1945
*1953

airplane soaring upward. In the eight years which have elapsed since the British Gloster Meteor passed the 600 mile mark, over 100 mph have been added to the official record. Though this may appear slow progress at first glance, one must consider the fact that the rate of increase in aircraft speed per year from 1903 to 1948 was only 14 mph. To maintain this rate as the speed of sound is approached becomes a tremendous effort due to extremely high increase in drag and the consequent need for engines of very high propulsive power.

What the future holds is anyone's guess. The 1200 mph speed of the Douglas Skyrocket—purely an experimental craft—affords some idea of what we may expect when the jet and the rocket engines are fully developed and the problems of various kinds surrounding supersonic flight have been fully solved.

The PLYMOUTH Internats

Chrysler Kiltie Band departs after escorting prize winners (foreground) to Plymouth Victory banquet. As for awards—can you count 'em all?

ALL THIS FOR ONE CONTESTANT!

This is what Plymouth considered necessary to insure a contestant having fair chance to fly. First, you have one flyer, Arthur Pawloski, 14, of Detroit (holding model). He is permitted one mechanic. The Academy of Model Aeronautics provides the rules and licenses the flyers—Russ Nichols, exec director, kneels at left. Then we have the contest director, Warren Bartlett (behind Art). Third row (3 handsome gentlemen) has from left the director of control line events, Curley Clingman, a chief judge, Keith Storey, and starter, Leon Shulman. The other 14 include timers, pull test judge, file clerk, laps timer, watch reader, processors, tabulation crew and announcer.

■ Plymouth's seventh International Model Plane Contest in Detroit, a four-day affair held at Selfridge Air Force Base and Detroit's Belle Isle athletic field, set a new high in well-run meets, for certainly no contest in the world ever had so many officials in attendance.

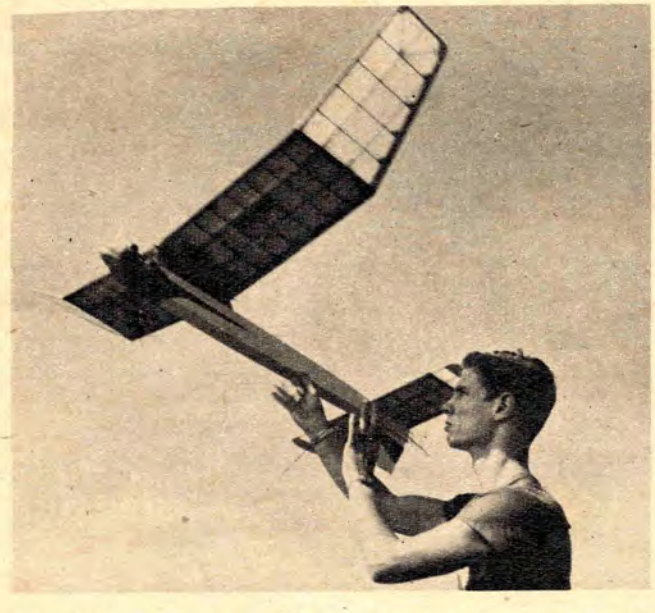
The number of contestants dropped off this year, yet the caliber of flying remained high. One reason was the establishment of a Leader (Open Class) Division which permitted adults who had been active in local Plymouth Aero League groups to enter.

The competition was climaxed by a victory dinner at a Canadian recreation center and saw in attendance such notables as Vice Admiral C. E. Rosendahl; K. T. Keller, chairman of board of Chrysler Corp.; L. L. Colbert, Chrysler president; J. P. Mansfield, general manager of Plymouth, and William Bird, Plymouth sales manager—plus about 1200 contestants, parents, mechanics, and car dealers. Some $4,000 in cash prizes and 120 trophies were handed out. When the affair ended top winners were:

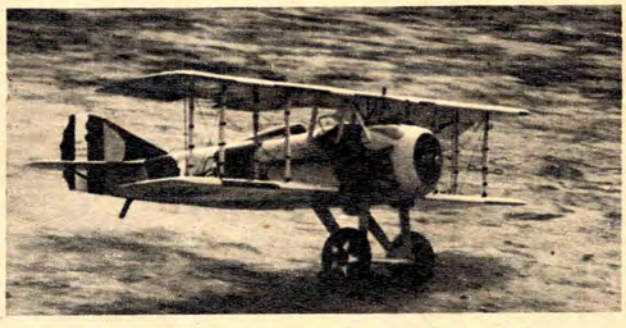
Jet champion with 144.64 mph, Gerry L. Blake, 16, Dearborn, Mich. Leader division high point champ: Airman 1/C Thomas Baker, 24, USAF. Senior high point man: Edwin McGowan, 19, Napa, Calif. Junior high point flyer: William Schlarb, 15, South Bend, Ind. Freshman high point winner: Alden Hansen, 9, Midland, Mich. Stunt champion: Donald Still, 22, Beaumont, Texas, 343 points. Girls' high point winner: Shirley Ann Austin, 15, Kirkwood, Mo. Top Canadian contestant: Robert Thayer, 14, Riverside, Ontario. Scale model champ: Roger Harney, 18, Berwyn, Ill. Team race winner was Charles Gray, 18, Miami. The sportsmanship award went to Gerald Wagner, 20, of Southington, Conn., who spent so much time helping other flyers he reduced his own chances of winning. The youngest contestant was 8-year-old Michael Scuro of Pittsburgh, (*Continued on page* 30)

Robert Stucker, Rock Island, Ill., entered Douglas B-26 in Sr., took 8th. O&R .23's. Dad launches. "AT" plans again available.

Ah, that moment of sad parting. "Wing! Farewell!" says combat ship (rt.). Top combat man was Jim Ebejer, 17, Detroit.



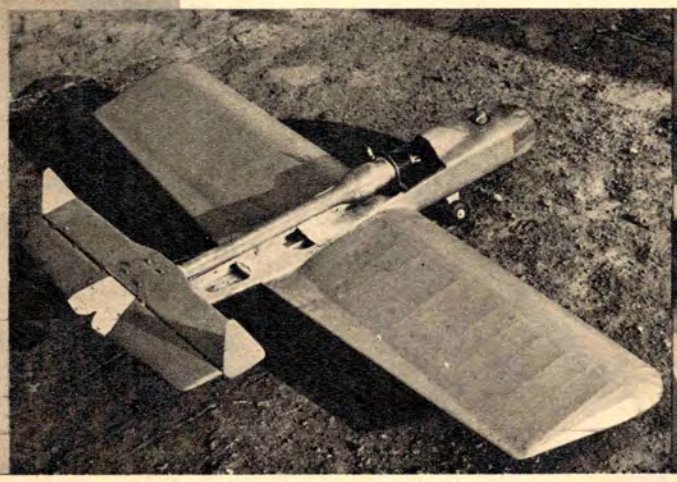
Bob Gelvin, Topeka, Kan.; K&B .23 Spacer. Dethermalizer burned limit string. Stab remained aloft longer than fuselage-wing.



Top scale was this Spad with 311 points. Roger Harney, Berwyn, Ill., took Sr. with it. Power: Atwood .51. Slick finish.

Team racing crown went to Charlie Gray of Miami (center, above) shown at right with AMA pres Keith "Key" Storey who had to admit Florida is great T/R state. All those trophies are Gray's. Whew!

Stunting jets, radio-controlled model blimps and admirals—that's the sort of thing you run into at this big invitational competition



Dyna-Jet stunter flown by James Beecroft, 14, St. Paul. Five ft.; 720 sq. in.; 12 oz. tank wedged at rear; symmetrical wing; 5½ lbs.

Old Timers' session (from lt.): Pete Vacco, Joe Stefani, Lavalle Walter (pres. MAA of Canada), Japanese guests & Clair Oberly, K&O.

which qualified him for a nice trophy.

At the victory dinner Mr. Keller complimented the assembled modelers on their interest in radio control flying and indicated that it was a desirable activity especially in light of a serious shortage of guided missile technicians in military and government science service. In congratulating the radio winners, the former director of guided missiles for the U.S. stated that the U.S. missile has progressed to the point where it can be aimed at a target 500 miles away and be landed within 6 feet of that target.

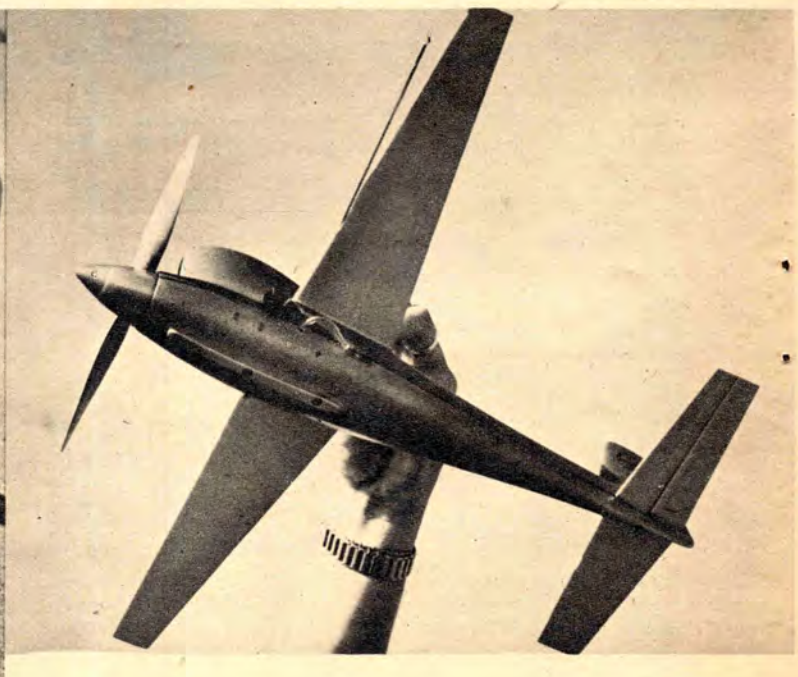
In general, competing models were better finished and performed with fewer crack-ups this year than ever before. Combat continued as a top interest event, while the multi-engine scale entries drew considerable interest from entrants as well as spectators.

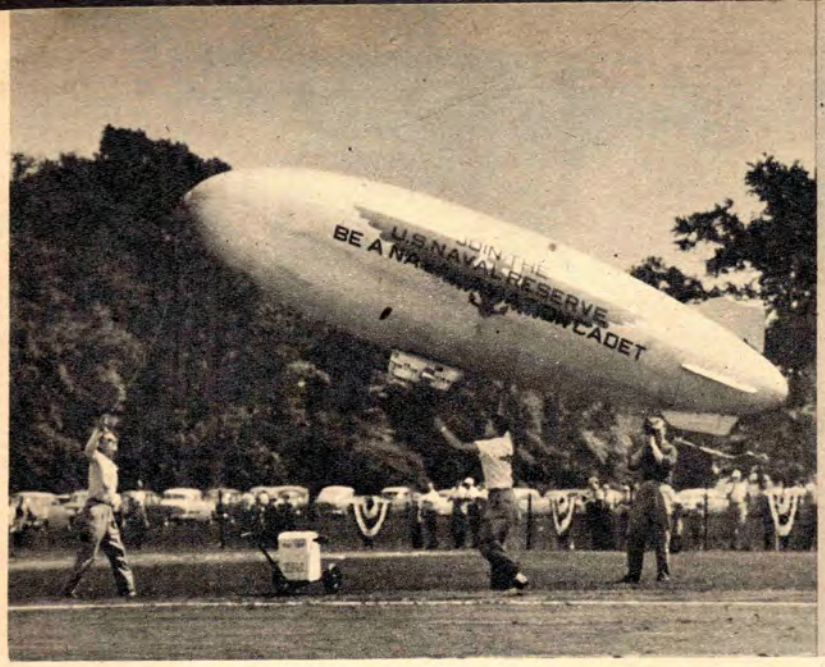
Headquarters for the contest, as it has been for the past six years, was the Fort Shelby Hotel. Plymouth provided all the comforts of home for entrants including housing, meals, bus service to the flying fields, box lunches, colorful T-shirts. (All photos by Berni Schoenfield.)

F-82 with 2 McCoy .19's by Barry Robertson, Glendale, Cal., from AT plans. Slick black finish. Barry won carrier at '52 Nats.

K&B .32 powered delta flown by Garry Austin, 9, Kirkwood, Mo.. Father Frank fueling; this is a club design by Bill Netsban.

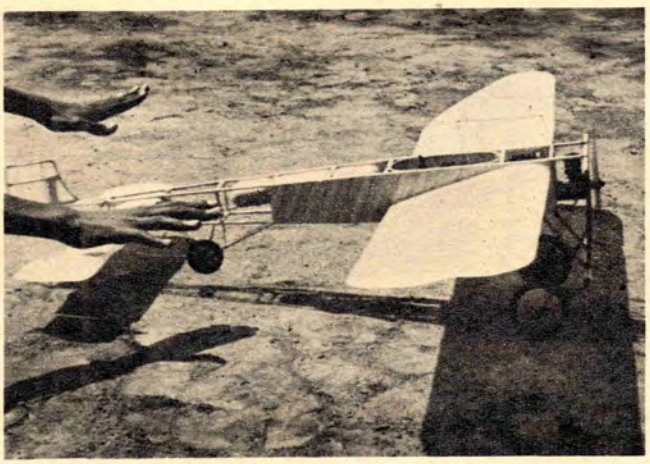
Dooling .29 Monoline speedster by Jim Clem has 10:1 A.R. Victor Stanzel developed it; 18" span. Has done 139; at Nats one did 137.





Again this year the radio control model blimp was present; again the radio controls failed to function. But an impressive sight, no?

Fourth in Sr. C/L Scale with 4-O&R .23 powered Lancaster was Graham Ireland, Syracuse. Spans 67 inches; flies beautifully.

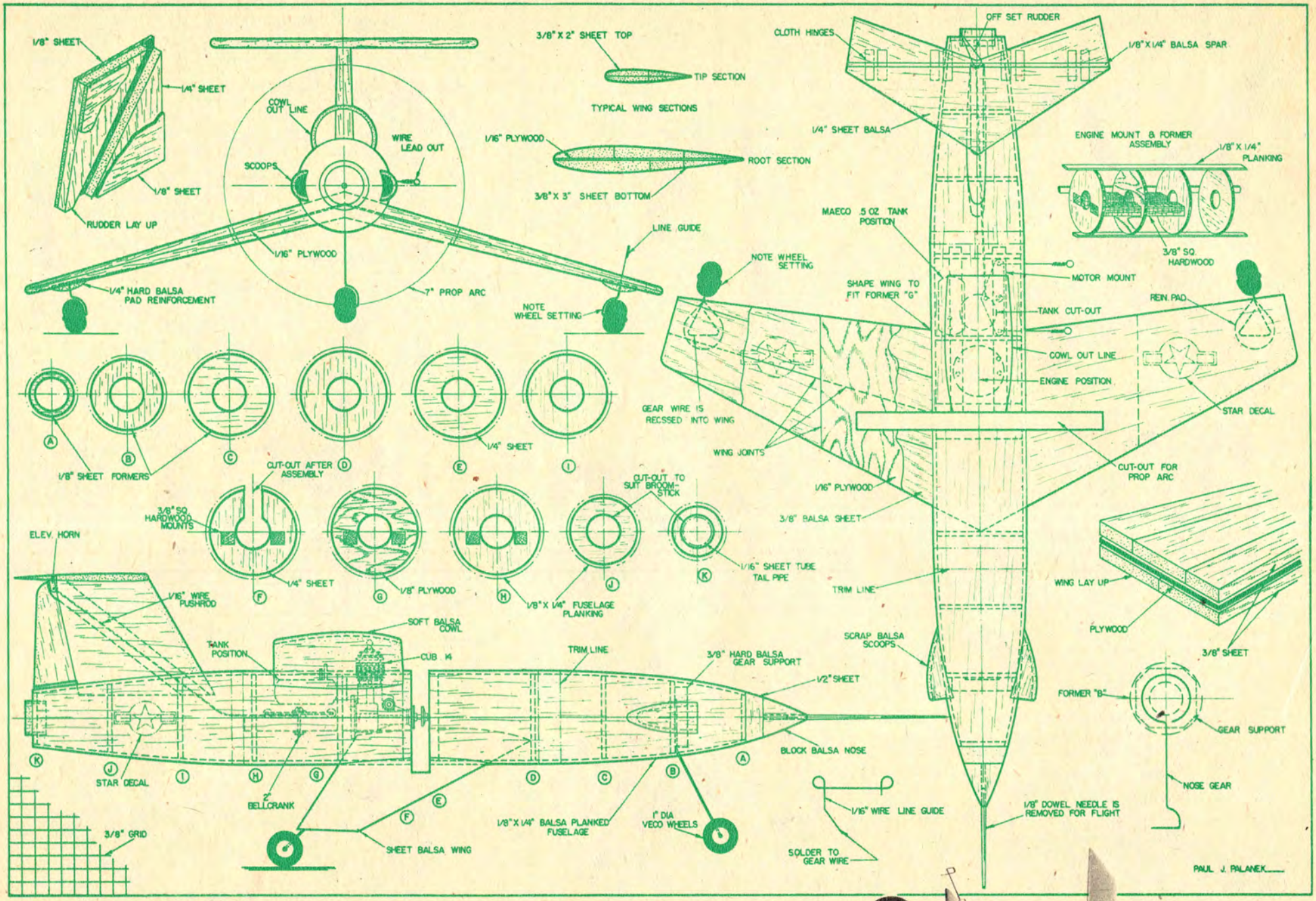


David Graben, Bismarck, N. D., entered C/L Bleriot powered by McCoy .29; 6th in Sr. Construction followed original closely.

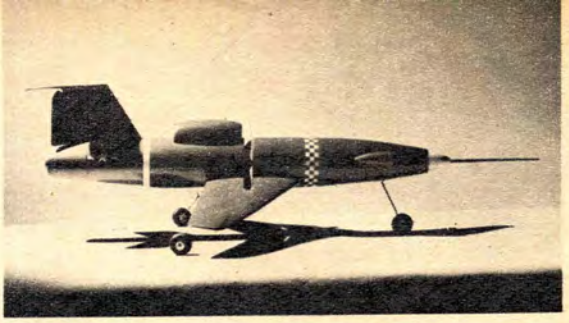
Hit of the meet was this scale-like autogiro flown by Art Christen of Toledo in exhibition. Squaw fuselage; Fox .35; fast, stable.

Well-known fixture at Plymouth meet is the supply truck and its man-in-charge Joe Dallaire shown approving Cox TD-1 job.

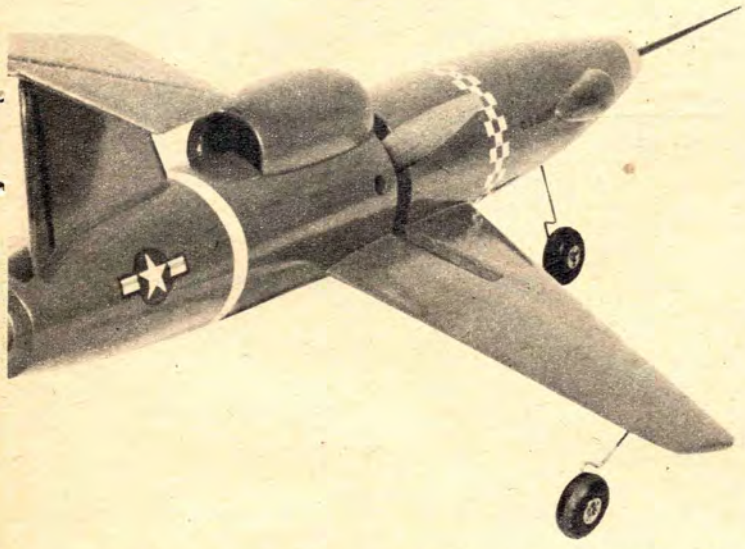
Warren Bartlett, CD, beams on AF's Tommy Baker, high point open flyer. Rest of Air Force modelers grin over the hardware they won.


1/8" SHEET
1/4" SHEET
1/8" SHEET
RUDDER LAY UP
COWL OUT LINE
WIRE LEAD OUT
SCOOPS
1/16" PLYWOOD
1/4" HARD BALSA PAD REINFORCEMENT
7" PROP ARC
LINE GUIDE
NOTE WHEEL SETTING
3/8" X 2" SHEET TOP
TIP SECTION
TYPICAL WING SECTIONS
1/16" PLYWOOD
ROOT SECTION
3/8" X 3" SHEET BOTTOM
A
B
C
D
E
I
1/8" SHEET FORMERS
1/4" SHEET
CUT-OUT AFTER ASSEMBLY
3/8" SQ HARDWOOD MOUNTS
F
1/4" SHEET
G
1/8" PLYWOOD
H
1/8" X 1/4" FUSELAGE PLANKING
CUT-OUT TO SUIT BROOM-STICK
J
K
1/16" SHEET TUBE TAIL PIPE
ELEV. HORN
1/16" WIRE PUSHROD
SOFT BALSA COWL
TANK POSITION
CUB 14
TRIM LINE
3/8" HARD BALSA GEAR SUPPORT
1/2" SHEET
BLOCK BALSA NOSE
STAR DECAL
2" BELLCRANK
SHEET BALSA WING
1/8" X 1/4" BALSA PLANKED FUSELAGE
1" DIA VECO WHEELS
3/8" GRID
CLOTH HINGES
OFF SET RUDDER
1/8" X 1/4" BALSA SPAR
1/4" SHEET BALSA
ENGINE MOUNT & FORMER ASSEMBLY
1/8" X 1/4" PLANKING
3/8" SQ. HARDWOOD
MAECO .5 OZ. TANK POSITION
MOTOR MOUNT
NOTE WHEEL SETTING
SHAPE WING TO FIT FORMER "G"
REIN. PAD
TANK CUT-OUT
COWL OUT LINE
ENGINE POSITION
STAR DECAL
GEAR WIRE IS RECESSED INTO WING
WING JOINTS
CUT-OUT FOR PROP ARC
1/16" PLYWOOD
3/8" BALSA SHEET
TRIM LINE
1/16" WIRE LINE GUIDE
SOLDER TO GEAR WIRE
1/8" DOWEL NEEDLE IS REMOVED FOR FLIGHT
WING LAY UP
PLYWOOD
3/8" SHEET
SCRAP BALSA SCOOPS
FORMER "B"
GEAR SUPPORT
NOSE GEAR
PAUL J. PALANEK

Rocket Racer



By PAUL J. PALANEK



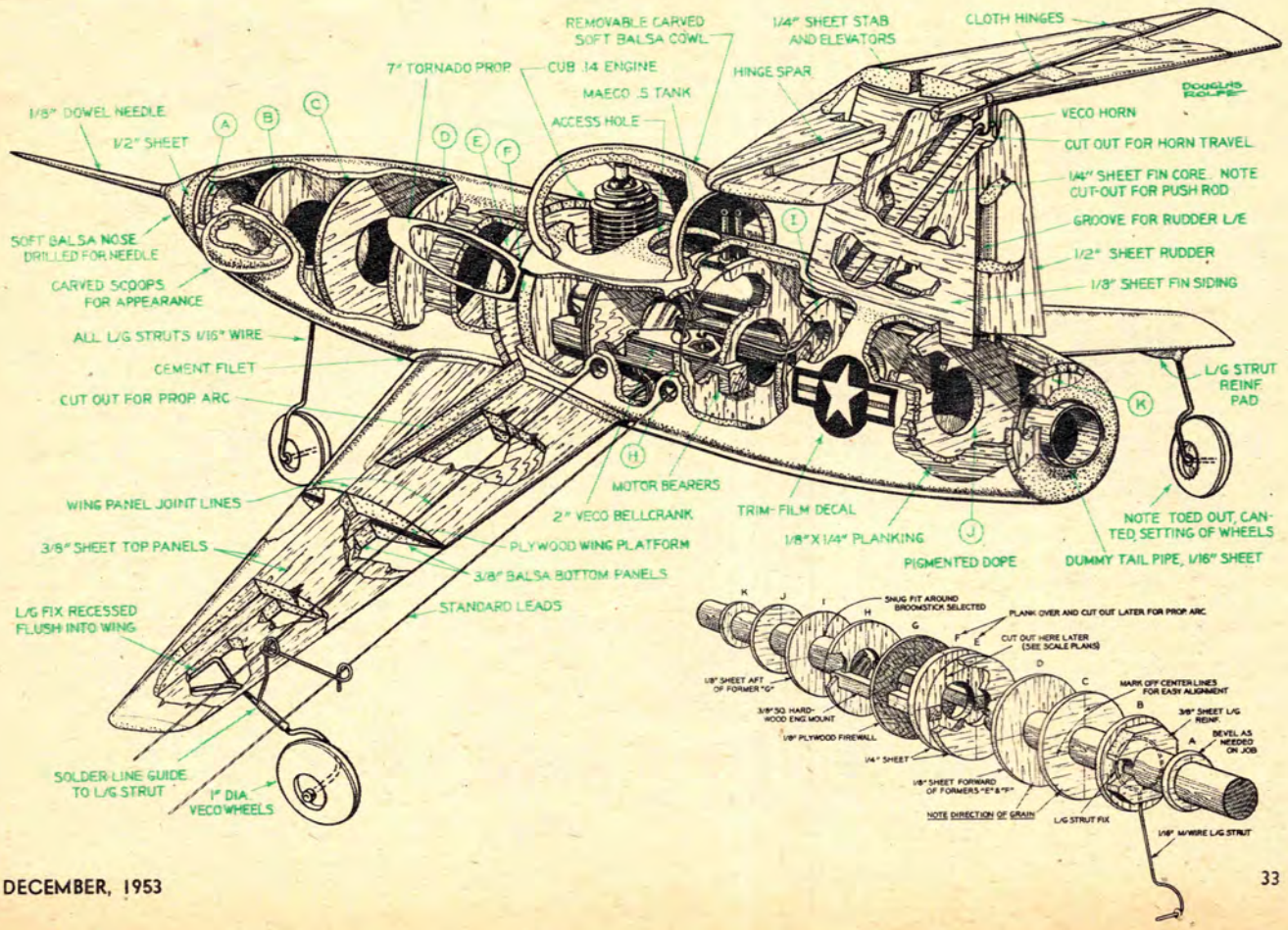
This "broomstick missile" looks like the real thing! You'll be the sensation of the city, the terror of the town, with this 'un.

■ Our missile is not intended for the devastation of a potential enemy. To the contrary, its concept was to give the U/C fan pleasurable hours of building combined with flying enjoyment. Since it is designed for U/C it is truly a "guided missile." We hit upon the idea whereby the fuselage should be built over a rod acting as a crutch. A broomstick is the most common stick found in the home, so we chose one.

That we have something different in the mounting of the Cub .14 is quite evident. The prop arc splits the fuselage and a small portion of each wing panel. We did this to keep the design down in bulk. However, we could have employed a duct fan or a blower system of propulsion but this would give the Rocket considerable bulk, particularly in the fuselage. With the engine mounted as is, the design is kept clean and considerably more proportionate to actual design.

Just a word about the wingtip mounting of the main gear. With careful note given to the drawing and the photos the assembly of the gear will be a simple matter. The gear wire is bent in such a manner that when mounted the wheels have considerable toe-in and camber. Utilizing this method will permit the most severe landings to be absorbed by the gear with no resulting damage. As experience will show, the gear can flex in two directions instead of the usual one.

The fuselage is number one on the building parade so secure a broomstick of not too large a diameter—about 7/8". All formers are shaped as (*Continued on page* 72)


REMOVABLE CARVED SOFT BALSA COWL
1/4" SHEET STAB AND ELEVATORS
CLOTH HINGES
7" TORNADO PROP
CUB .14 ENGINE
HINGE SPAR
MAECO .5 TANK
ACCESS HOLE
1/8" DOWEL NEEDLE
1/2" SHEET
VECO HORN
CUT OUT FOR HORN TRAVEL
1/4" SHEET FIN CORE NOTE CUT-OUT FOR PUSH ROD
GROOVE FOR RUDDER L/E
SOFT BALSA NOSE DRILLED FOR NEEDLE
1/2" SHEET RUDDER
CARVED SCOOPS FOR APPEARANCE
1/8" SHEET FIN SIDING
ALL L/G STRUTS 1/16" WIRE
L/G STRUT REINF PAD
CEMENT FILET
CUT OUT FOR PROP ARC
MOTOR BEARERS
WING PANEL JOINT LINES
2" VECO BELLCRANK
TRIM-FILM DECAL
NOTE TOED OUT, CANTED SETTING OF WHEELS
3/8" SHEET TOP PANELS
PLYWOOD WING PLATFORM
1/8" X 1/4" PLANKING
PIGMENTED DOPE
DUMMY TAIL PIPE, 1/16" SHEET
3/8" BALSA BOTTOM PANELS
L/G FIX RECESSED FLUSH INTO WING
STANDARD LEADS
SOLDER LINE GUIDE TO L/G STRUT
1" DIA VECO WHEELS
SNUG FIT AROUND BROOMSTICK SELECTED
PLANK OVER AND CUT OUT LATER FOR PROP ARC
CUT OUT HERE LATER (SEE SCALE PLANS)
1/8" SHEET AFT OF FORMER "G"
MARK OFF CENTER LINES FOR EASY ALIGNMENT
3/8" SQ. HARD-WOOD ENG MOUNT
3/8" SHEET L/G REINF.
BEVEL AS NEEDED ON JOB
1/8" PLYWOOD FIREWALL
1/4" SHEET
1/8" SHEET FORWARD OF FORMERS "E" & "F"
NOTE DIRECTION OF GRAIN
L/G STRUT FIX
1/16" M/WIRE L/G STRUT

Western Roundup

Carl G's props superior for scrambling eggs . . . .

■ We rather enjoyed one contest last month—it led us to believe that some of that old, die-hard attitude, the true model builder spirit which we have known in the past still exists in some fellows. The San Valleers had scheduled their monthly contest at Rosamond Dry Lake Bed after losing the "Basin." We had planned to get up early Sunday morning and take it in. For some reason a job got "hot" at work and we had to work Saturday.

We arrived home a little late to find Ted Bieber and family waiting for us in a new

From Lethbridge in Alberta comes this Mac .29 Red Head bipe T/R, the "Ghost." By Bob Clifford. Two-foot span; fast; all sheet covered.

Ford they were breaking in. Ted wanted copies of some pics we had shot before his last trip to Korea. Also there was a call from Paul "BAUF" Gilliam to "come on up tonight," they were to have a night contest. The bull session and search for the pics delayed us until 6:30, but son Dale and I managed to get a Nordic, an El Lobo, the twin-engine El Dosjo and El Piojo in the car, then some blankets, pillows, water and food. By the time we arrived in Rosamond (two hours later), it was dark. We searched for the guys, were very reluctant to venture very far so—we hung up the ships and sacked up in the car.

When dawn broke, it was accompanied by an engine tuning up. This is the good

Okla. City's Robert H. Turner made this semi-scale C/L. Spans 20"; externally ribbed wing; butterfly tail; Cub .074. Aluminum sheet cowl.

part—we weren't a half mile from the gang. The only sand dune on the lake bed kept us from seeing them, but the guys were flying even in the wind. We expected the wind to drop, so Paul set about breakfast. Say, have you ever eaten bacon and eggs fried over a sagebrush fire—stirred with a Top Flite prop? Why, then you haven't lived. We quickly discovered the Top Flite has no peer when it comes to scrambling eggs. Tornados do not have enough blade area at the tip, likewise with Power Props, the plastic props bend after a very short time. Yep, we sure like eggs *à la Top Flite*.

It started getting calm so George Cassellberry and Hal Cover began flying—we even dragged out El Lobo—and flights were up and long. The ships were going O.O.S. in less than four minutes—but all the guys had to do was to step out of their car and catch the models when they came down. In the meantime, pounds of bacon and dozens of eggs along with instant coffee and lots of milk soon settled everyone's appetite. The skillet would hold a half pound of bacon and scramble six eggs at a time, so the food went fast. Sleeping accommodations were tents, sleeping bags, station wagons and cars, but it was windy. Only the seemingly endless dry lake bed where one could floorboard the accelerator and just steer allowed the guys to retrieve their models.

After several flights with the wind picking up all the time, some of the fellows drove over to Rosamond and called Edwards Air Force Base for a reading on the weather. They came back and reported it calm in Fontana, which seemed hard to believe; we decided to give it a try. When the ten-car caravan arrived at Fontana, we found the field closed and a high storm fence around it—but *it was calm*. Knowing of a field just outside of Etiwanda, we banded the gang together and took off again. The contest got started once more at 11:30 and 95 miles from its beginning in Rosamond. Model builders are just model builders.

To our complete amazement it stayed calm till after 3:30, the likes of which we have never seen before or since in our eight months in that neck of the woods. One particular flight was in the air on a long fuse for over 30 minutes, getting so high, then the model weathervaning, that it took some 14 minutes to dethermalize, and it did not get off this half-mile-square field. Along about 4:15 p.m. the wind came up, but it was too late to stop Paul Gilliam and his six-year-old "Sleek." For the second straight contest the plane won 1st. It's beginning to look more and more like he has spent six years with the wrong ship. All in all a real gone time was had by everyone, and there was even food left over after the contest. A similar contest, less wind, is planned for this month, this time a two-day affair.

The Inglewood Flight Masters 4th Annual ½ A Scale Free Flight Contest

Bob Haushalter (lt) and Stuart Cooper built this 12-ft. R/C towliner; 3-pc. wing; 10 ft. fuselage. Good performance in glide tests.

First-place (5:11) at German Nats' tailless event (any power) taken with this rubber-powered entry by Walter Schubert, Breman.

(whew! Some title) was over twice as large as last year's which was in turn larger than the preceding year's. The problem of Louis Culler possibly winning for the fourth year was very ably handled, for he stuck to his statement and didn't fly his Cub. He flew his Ercoupe to 5th place. Some other interesting points which we feel should be passed along: The Juniors and Seniors outflew the older guys by an average ratio of almost .5—

Diversity of interests shown by the Flying Rebels of Atlanta, Ga. This group is sponsored by East Atlanta Exchange Club. Has 25 members.

but the open contestants outbuilt the youngsters by some 17 points which is to be expected. But as for that flying, just who is helping who?

It is also quite interesting to note some ratios of .898—.646—.03 etc. due to the rule which added on ten seconds for hand launching and minimum of 20 and 30 seconds for R.O.G. and H/L. Some fellows R.O.G.ed but didn't do 20 seconds, while some hand launched and hit the deck with the engine running. There is a lot of justice to this. Flight points almost without exception won the contest, in open from Gary Witt's 3.147 to Bob Wiehle's .03, exceptions were the rule. Frank Pollard's amazing 8.85 ratio is likened to 2 minutes and 57 seconds on a 20-second run. Man, there have been a lot of guys in regular free flight contests who could have used this as a third flight and won. Frank also had high scale points of 71, so that his total points were 628.35. Do you realize he came within 3 seconds of an absolute maximum in flight points?

In scale points some real close judging took place. Dave Kulckoff was tops with 93 points with his JN-40, but had a ratio of only .20 for flight. Ced Galloway had 90 points and .20. (*Continued on page 49*)

. . . Southeasterners take in the Southwesterns

■ Lamar Parker, who with his son Bill flew out to Dallas, gives some interesting angles on the big Southwesterns. He says: "They flew B speed Saturday and before I could get a plane in the air, five of those Texas lads had turned in speeds of better than 130! Told them that was a fine example of Texas hospitality! Promised them we wouldn't treat them that way in the Southeasterns! Clem and Beasley with 139.65 finally took first. Son Bill won second in senior division with 121 miles per hour. Used a McCoy. I took a new McCoy .60 but couldn't get it started. The 1½ Froom needlenose would wring off in every starter on the field. All hoses were for small spinners and the suppliers on the field had no spinners except plastics!

"Open D speed, Norman 146.76. A speed won by Bill Timmons in open division with 127.79. Those Texans really go in for combat, with constant flying both days and lots of mid-air collisions. Maurice Teter who directed the '51 Nationals did a fine job for the East Dallas Exchange Club. Leo Holliday who won first in B speed at Willow Grove was in charge of speed. I invited all the speed boys to be sure and come to the 1954 Greater Southeastern meet. (I am curious to see if the 400 feet of added altitude will trim down those speeds!) If a lot of flyers from either Fort Worth or Dallas come you can expect a carload of the other town's flyers. The friendly feudin' is still going on!"

This is the first time since an unfortunate incident in Columbus some years ago that Lamar's son Bill has flown. Look out, you fellows—you've got *two* Parkers now to deal with. Lamar and Bill should make a real troublesome combination.

"What about the Tangerine Internationals at Orlando, Fla?" In answer to many inquiries we shall attempt to answer. But,

Norman Cross of the San Diego Aeroneers and his inverse delta free flight. Runs Space Bug backwards with a regular prop for thrust.

maybe by the time you read this, the Florida sponsors will have wired Air Trails and you'll have more definite information. At the present writing I am informed by Tom Mickler, who directed three years of this meet, that there is grave doubt about the meet this year.

West Coaster Bill Wiscznewski's Torp .19 Fiberglas speedster. Both cowl and fuselage top are molded of plastic. Real slick. "Easy," says D.E.

When you read this—if you haven't heard through Air Trails—we suggest you wire or airmail Mayor Rolfe Davis, or Bob Duckworth, President Orlando Exchange Club, and urge them to continue this meet. With its weak spots (and what meet doesn't have 'em), it's a grand place for a winter meet and all who go enjoy it!

Columbia, S.C., came up with the best meet in its history. Winners included Hill Hutchins Jr., of Spartanburg; Warren Hall of Burlington (N.C.) and Edwin Epps, age 14, a native of Columbia. Top speed of the day by Bill Taylor of Macon, Ga., with 144 mph in D speed.

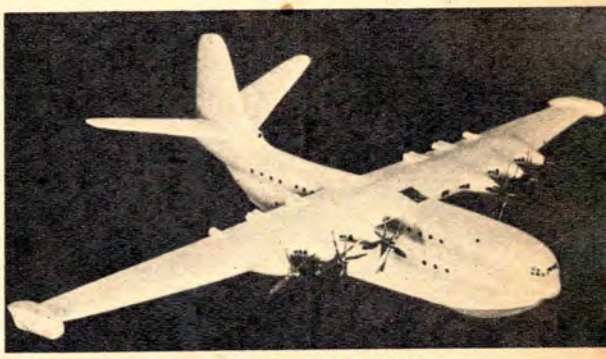
Larry Bly of Orangeburg, S.C., emerged as outstanding with top honors given his "Black Widow"—a realistic version of the full-size counterpart. This twin-engine model of the World War II P-61 was minutely detailed, down to the instruments in the cockpit. The cockpit alone took nine months to build! This is the ship that took the "Testor Plaque" at the Greater Southeasterns for "best finish," and followed with firsts in Charleston, Spartanburg, Greenville, and Columbia in open divisions. Maybe the secret of a guy being able to devote nine months in his spare time at home lies in getting the kind of encouragement Larry receives from his flying wife, Barbara. (We know of many fine modelers who have fallen along the wayside because they didn't get the right kind of support from their gals.) Over in the senior division Hill Hutchins, Jr., of Spartanburg continued his achievements in scale and stunt.

Behind every good meet are good sponsors and leaders. Columbia had the Aero Club, composed of seven private plane owners. And what sponsors they proved to be! Why, they are contemplating a five year plan! If this comes through you can expect Columbia to be one of the top contests in the South.

There were trophies to spare at Columbia, plus $400 in merchandise prizes that were awarded in an original manner. While the Master Scorers and Tabulators were getting up the winner's list, all these merchandise prizes were drawn for, on a table distant enough to give the tabulators peace of mind and quiet—which also speeded up the results. Al Uhl and Ray Epps were the operators of the meet. Jack W. Scharpf, Jr., who judged stunt at the Nationals, did his usual fine job. Al says, "Radio control was by far the most interesting new event and will snowball into something *really* big next summer."

A report of this meet would not be complete without complimenting David E. Abeel, reporter for the Columbia *Record* newspaper, for his "big story." Three columns with four big pictures! The best coverage by a newspaper in the South in four years. Hard-working official Jim Weaver of Birmingham, who has officiated in most every meet in the South this past season, took time out to fly—a well deserved privilege. He took third place in radio control with Joe Jones of Gadsden, Ala., his pit man.

Reidsville, N.C., held a meet on Sep-



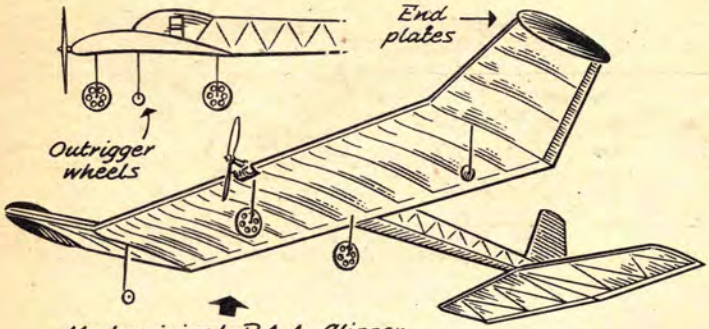
Flying Officer A. C. Smeed, RCAF, produced this 27 in. span Saunders Roe Princess solid scale in approx. 100 hrs. Eight coats of aluminum dope.

tember 6. Our efforts to get a report of this did not materialize.

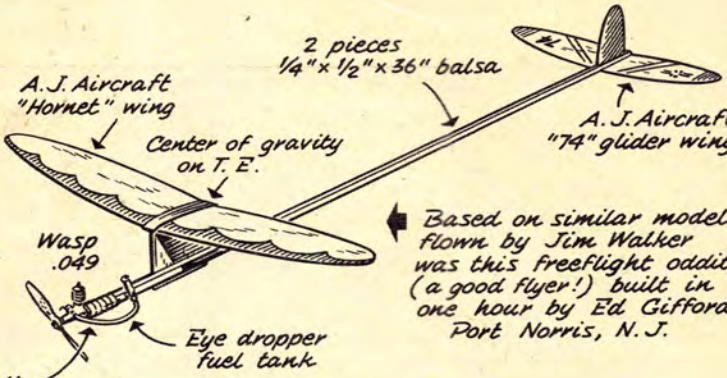
Claude J. Rinehart, Clearwater, Fla., reports on the contest in his neighborhood city of Tampa. It was sponsored by the Flying Buccaneers Club and American Legion Post No. 5 of Tampa. Claude is one of the newly elected members of the Southeastern Federation, representing, along with others, the State of Florida. George Fowler was given much credit for his direction of the contest. Congratulations to Tom Reicken, of Orlando, for winning the American Legion High Point Trophy!

Interest continues to grow in Columbus, Ga. Larry Cooper of the White Company now puts out a monthly "Hobby News Letter" full of interesting happenings. They are concentrating on teaching beginners as well as reviving interest among the old-timers. Recently they held "Open House" with entertainment, refreshments and films. A fine way to keep up interest between seasons. Control line is most popular—over 20 taught to fly in the past six weeks. We (*Continued on page* 70)

Yipes! Bob Ehrhart's bi-motor quadraplane (plus 1). Four Firebaby wings, 2 Space Bug engines. Control line; yep, it flew. Somebody tell us why?



Most original P.A.A. Clipper Cargo design was John Stiles' (Hillsdale, N.J.) with submerged Space Bug engine and tandem bicycle gear —


2 pieces 1/4" x 1/2" x 36" balsa
A.J. Aircraft "Hornet" wing
Center of gravity on T.E.
A.J. Aircraft "74" glider wing
Wasp .049
Eye dropper fuel tank

Based on similar model flown by Jim Walker was this freeflight oddity (a good flyer!) built in one hour by Ed Gifford, Port Norris, N.J.

Long bolts "gauzed," cemented along boom

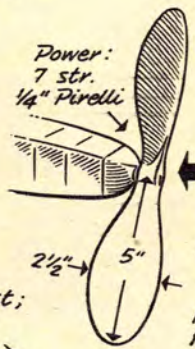
SKETCHBOOK

The 1200 contestants at the 1953 National Model Meet produced such an overwhelming outlay of interesting knacks and techniques that this spread is hardly more than a sampler.

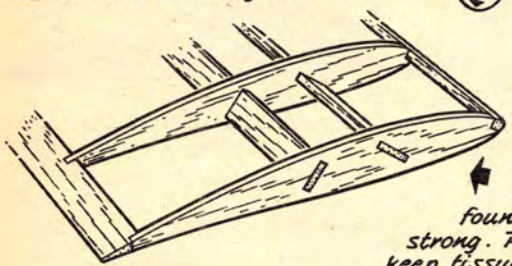
Among many worthwhile techniques observed was the method of obtaining tough, high-gloss finishes by the Ft. Worth freeflighters. This is indicative of a definite general trend toward better workmanship. Even on largest ships in this group, lightweight Jap tissue is adequate, serving only as a base for the plastic-like skin formed by many clear finishing coats.

Model structures, particularly in events such as the PAA Clipper Cargo, are becoming highly developed now with box spars, geodetic construction and all manner of weight-

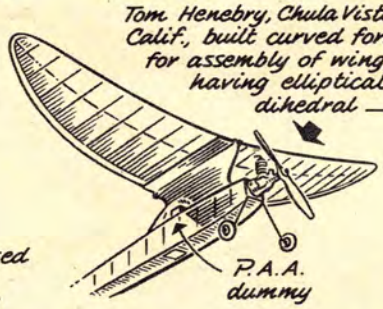
Carl Rambo, Oakland, Calif., continues to experiment with downthrust; A/2 model had nearly 30°!



Experimental high pitch propeller for P.A.A. Rubber Payload model by Lee Renaud, Canton, Mass. 15 sq. in. area, 10" dia., 40" pitch, silk-covered...



Hal Roth, Oakland, Calif., inclined spars inwardly; found them adequately strong. Purpose: to keep tissue from touching spars.

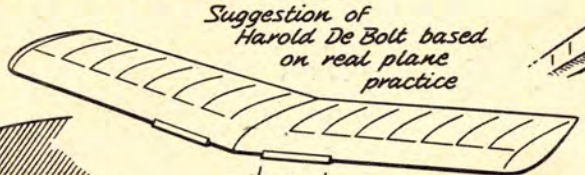


Tom Henebry, Chula Vista, Calif., built curved form for assembly of wing having elliptical dihedral —

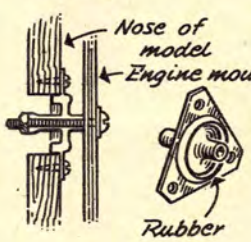
Lou Andrews, Norwood, Mass., used eyedropper cap over engine venturi... Metal grommets in end gave variable air intake —

A Rear view of R/C wing showing built-in washout... helps reduce tip stall but is difficult to build accurately —

Suggestion of Harold De Bolt based on real plane practice

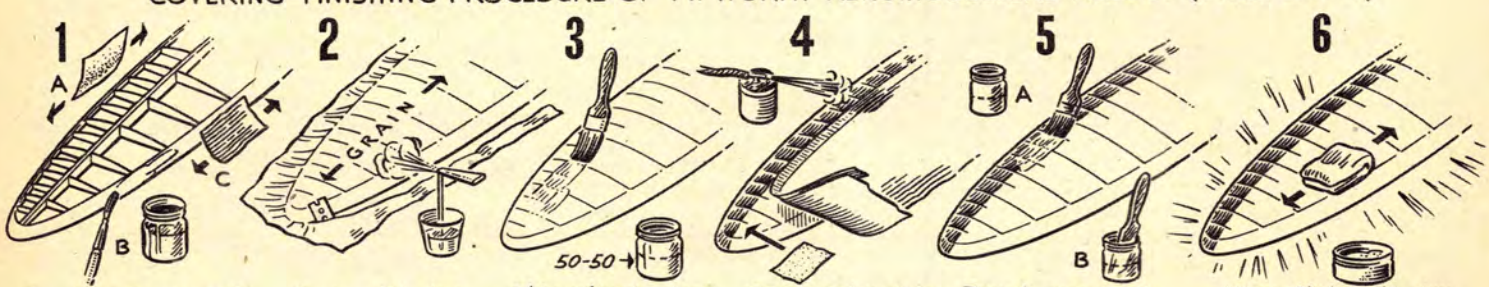


B "Spoiler boards" mounted inboard on leading edges achieve same effect as tip washout by promoting stall of root section first... Much simpler to make; wing is built true —



Flexible firewall mounting absorbs vibration and shocks claims Gordon Gabbert, Dallas, Texas — Three or four "Lord mount" fittings (used in aircraft instrument mounting) employed.

COVERING-FINISHING PROCEDURE OF FT. WORTH AEROMODELLERS ASSOC. (FREEFLIGHT)



Sand surfaces, apply one coat dope, sand exposed surfaces again lightly —

Cover with jap tissue, "grain" spanwise - spray with water —

Thin nitrate dope 50%, apply two coats daily for total of 10-11 coats.

Spray color dope trim, sand off ridges left by masking tape —

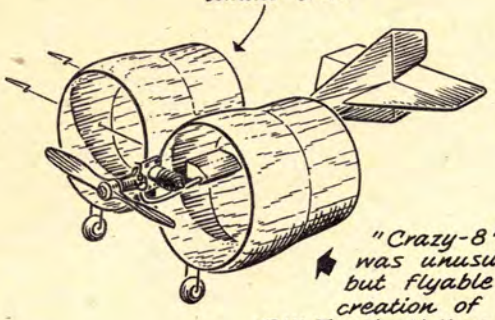
Brush one coat nitrate cut 50%, then three coats butyrate, cut 50% —

Allow finish to dry 24 hrs., use rubbing compound then wax or simonize surfaces.

at the Nationals

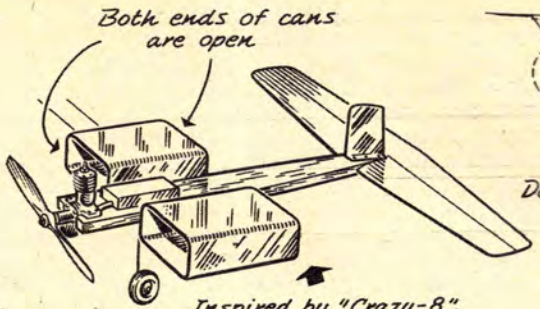
saving measures being taken. Nor is model design-theory static by any means; critical take-off problems in radio control and Clipper Cargo have focussed new attention on gear design, and streamline-section wings of stunt planes are flying sensationally in radio ships. The boys are kicking over the traces as never before.

Team competition and participation by groups are helping to raise the general standard of model building proficiency because of competition within the groups. There is the urge to avoid being low man on the totem pole and ready counsel is available within the group for any member needing it. The ever-lengthening list of events is making modelers more versatile. One-event specialists persist in small numbers while more and more of the boys now branch out and become capable competitors in many.



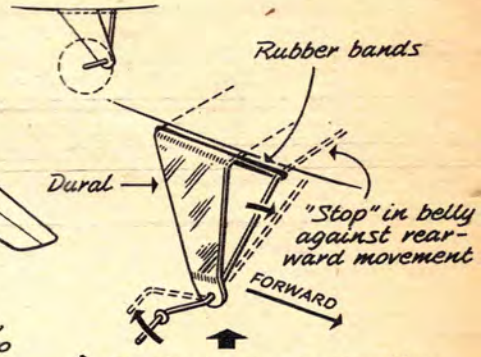
Balsa cylinders shaped around tomato cans

"Crazy-8" was unusual but flyable creation of Bill Frank, W. Haven, Ct.

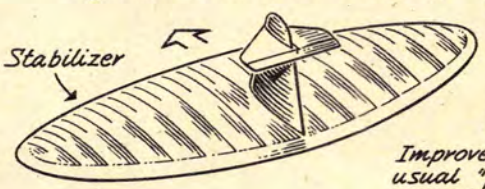


Both ends of cans are open

Inspired by "Crazy-8", Bob Yeomans, W. Haven, Ct., built "Can-Can" using two discarded fuel tins... Ship flew, dealing body blow to scientific modeling —



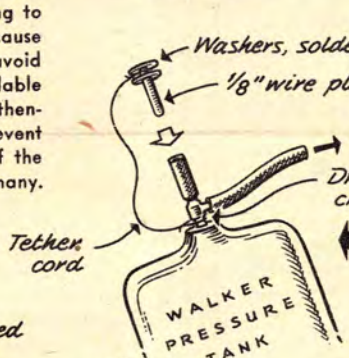
Excellent shock-absorbing landing gear is work of Jesse Sheppard, Ft. Worth, Tex.



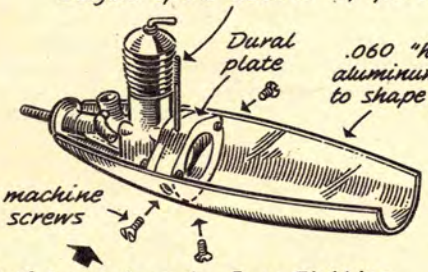
Small horizontal vane serves as end plate for fin and has screw adjustment for fine trimming —

Two ideas from Frank Huffman, Ft. Worth, Texas

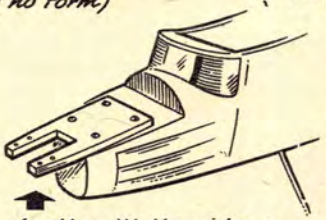
Improvement to usual "peg leg" gear has side skids (small wheels on larger models)



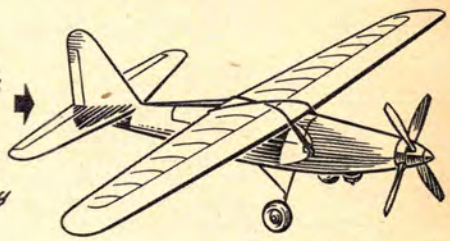
Lou Errington, Pittsburgh, Pa., simplified pressure tank for easier filling and air bleeding —



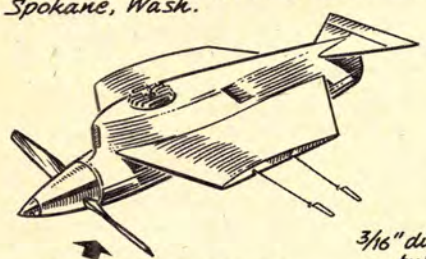
Half-A speed pan by Jerry Stebbins, Spokane, Wash.



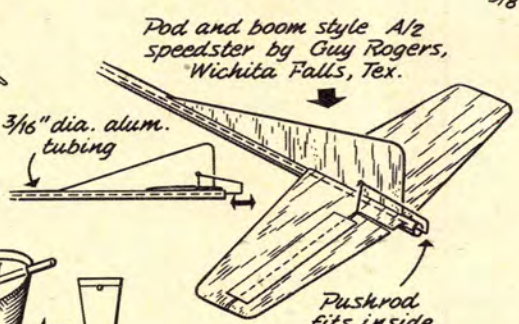
Another Walker idea: replaceable engine mounts; Fran McElwee used up three in R/C flights —

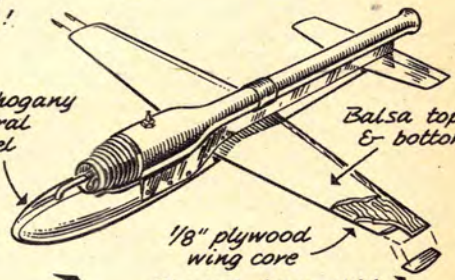


High speed R/C entered by Bob Beckman, San Francisco, Calif., had no dihedral, McCoy '60, gearbox & coaxial propellers!



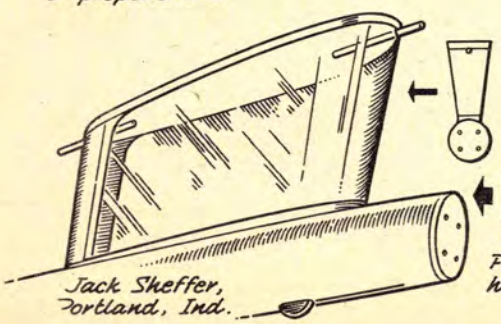
Speed entry of Stan Juras, Uniontown, Pa., was cl. C; had only 9" span, 9" propeller —





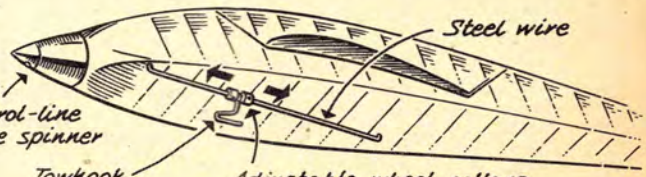
Jet model by Ray Shaw, Newark, Ohio

Special fitting gives lateral & longitudinal adjustment of glider's towhook...



Freeflight model pylon had no internal structure except at rear... Formed of .060 plexiglas heated around form —

Jack Sheffer, Portland, Ind.



Adjustable wheel collars — Built by Edward Luca, Brooklyn, N.Y.

International Jetex Contender

SASKIE

This craft, capable of exceptional duration flights, is simplest approach to free flight

Al, 26, Mechanical Engineer with Chrysler Corp. of Canada, now lives in Windsor. Started modeling at tender age of 6. Native of Saskatchewan, hence "Saskie." Believes in building other fellow's designs now and then "to get his approach on the problems." Otherwise everything he constructs is original.

■ *Saskie* was designed and built expressly for the First International Jetex Eliminations held in Windsor, Canada. It won handily and represented Canada at the International Competition held in the United Kingdom (ably proxy flown by Peter Cock of the experimental division of Wilmont Mansour & Co. Ltd.).

In designing this model, the basic consideration was to have an all-weather aircraft. Yet in Jetex, weight above all determines the performance. These opposing conditions imply that a compromise must be made, and that the best efficiency in structure design must be had. *Saskie* won the Eliminations in winds as high as 40 mph and certainly proved itself a match for mishaps. A nearly disastrous accident occurred on its first flight, however, when it managed to land in a growth of young trees. Tangled in one tree, it was being thrashed by the neighboring tree swaying in the wind. In fact, I located the model by the noise it made. The left wing was broken in two by this misadventure, and I had doubts about the remaining flights. But the sheet type construction of the wing repairs very easily, and the repaired wing is still being used.

As far as the weight is concerned, the model proved very satisfactory at 2⅜ ounces. Flight under power is quite fast, and as a result the climb is high. Thermals definitely get a chance on this job. Still air flights vary, of course, but two minutes are about average; perhaps a few more flights over than under.

Strangely enough, *Saskie's* layout is a direct descendant of a Wakefield model—that is, with respect to the inverted rudder and the Dualon wing mount. I might say the inverted rudder is not new, for it has been a common enough feature of European towlines for years. I've used it primarily for mechanical reasons. A fixed rudder and a popup stabilizer type dethermalizer can be employed in this manner. The Dualon wing mount is simply the easiest way to attain the desired wing, fuselage and motor relationship. This relationship was used on my first original design. Subsequent models of the standard "wing over-motor under" fuselage type seemed to lack the stability of my first design; so I reverted to it.

Jetex flying is a refreshing addition to our hobby. It embraces a lot of the considerations of rubber flying. Weight in design and trim in flying are much similar. But the time-consuming details of propeller and landing gear construction are out. The fuel proofing problems of gas jobs just don't exist. From many angles Jetex duration has a lot to offer as a complement to our contest events.

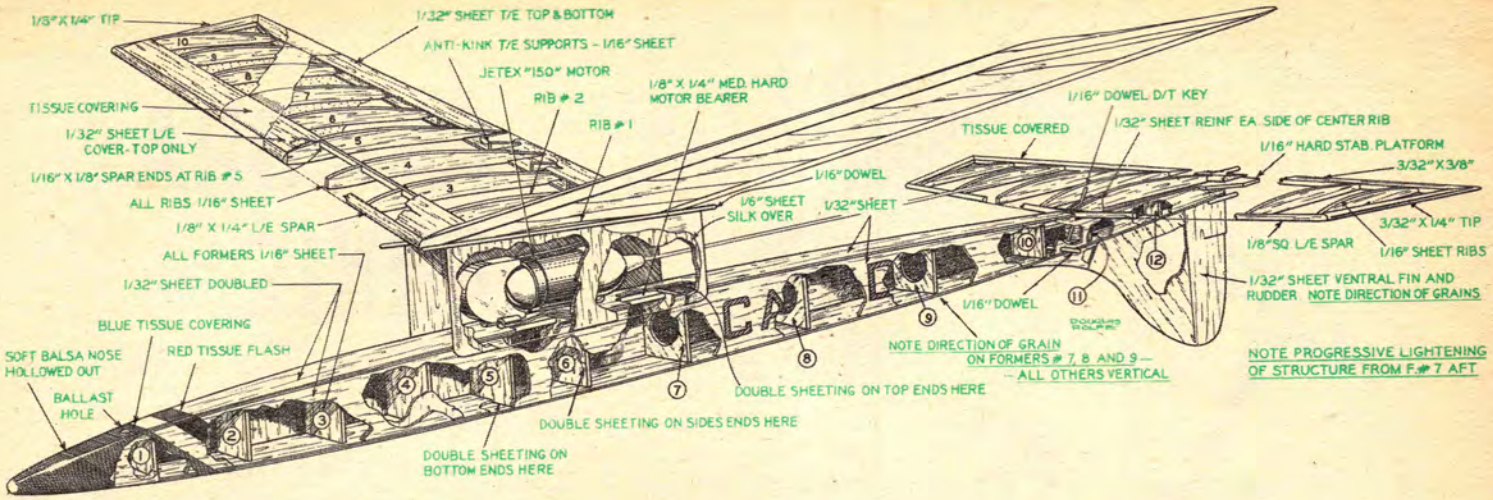
It seems to me that the wing of an aircraft is actually the most important part—for do not all other parts exist only that the wing may do its work efficiently? The 344G airfoil presented in Dr. Lippisch's series April and May 1950 Air Trails is stated to be a pure laminar section for low R.N. Also a really fast one, to permit the highest climb by virtue of greater speed while under power. As far as the glide is concerned, a wing loading as low as this model's must result in an exceptional glide. The minor difficulty with the section is that it is undercambered.

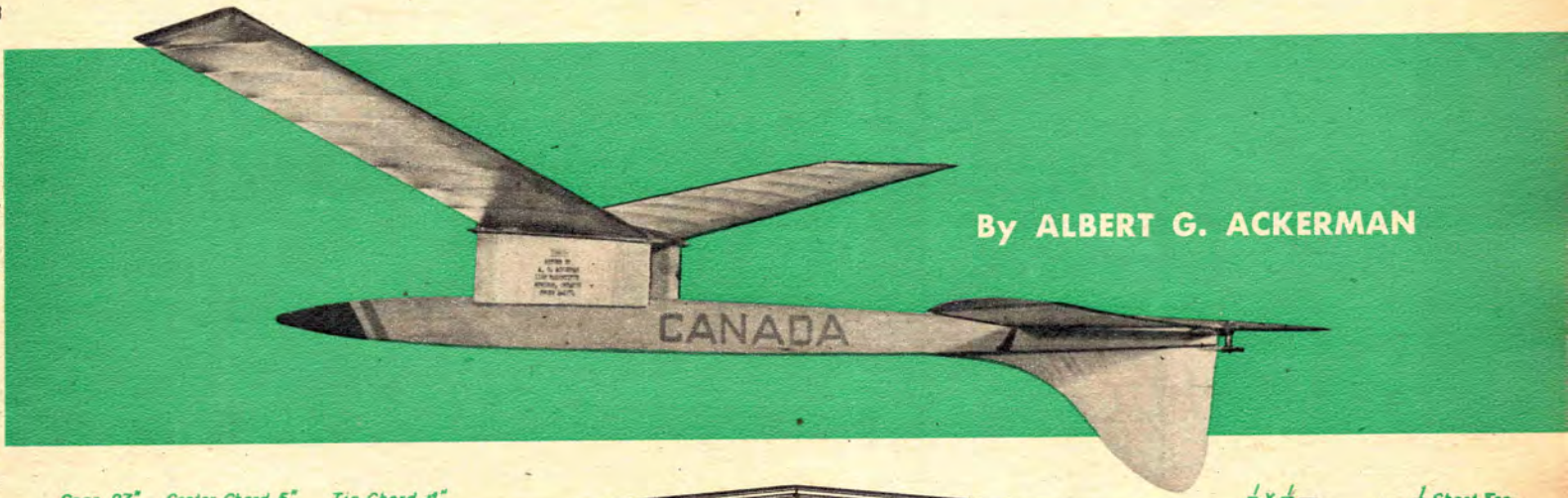
A fairly low aspect ratio wing is used. This helps reduce total weight. And tip losses are reduced by using a tapered planform plus a simple raked tip. The effectiveness of these tips was illustrated to me by an accident with a new Jetex 350 model. Extraordinarily clumsy handling caused one raked tip to be snapped off quite cleanly. Thinking it would matter little, I launched the model and it spiraled in. Without hesitation I reloaded the motor, set the rudder against the dragging wing tip and let it go again. The rudder held it out of the spiral only slightly. Yet, in ordinary conditions the model would have responded sharply to that much rudder. Obviously there was really a difference in drag produced by the square end and the raked tip.

This tip, of course, originated in the early days of aircraft. At that time it was the best compromise between easy construction and efficiency. I think it still is for model aircraft.

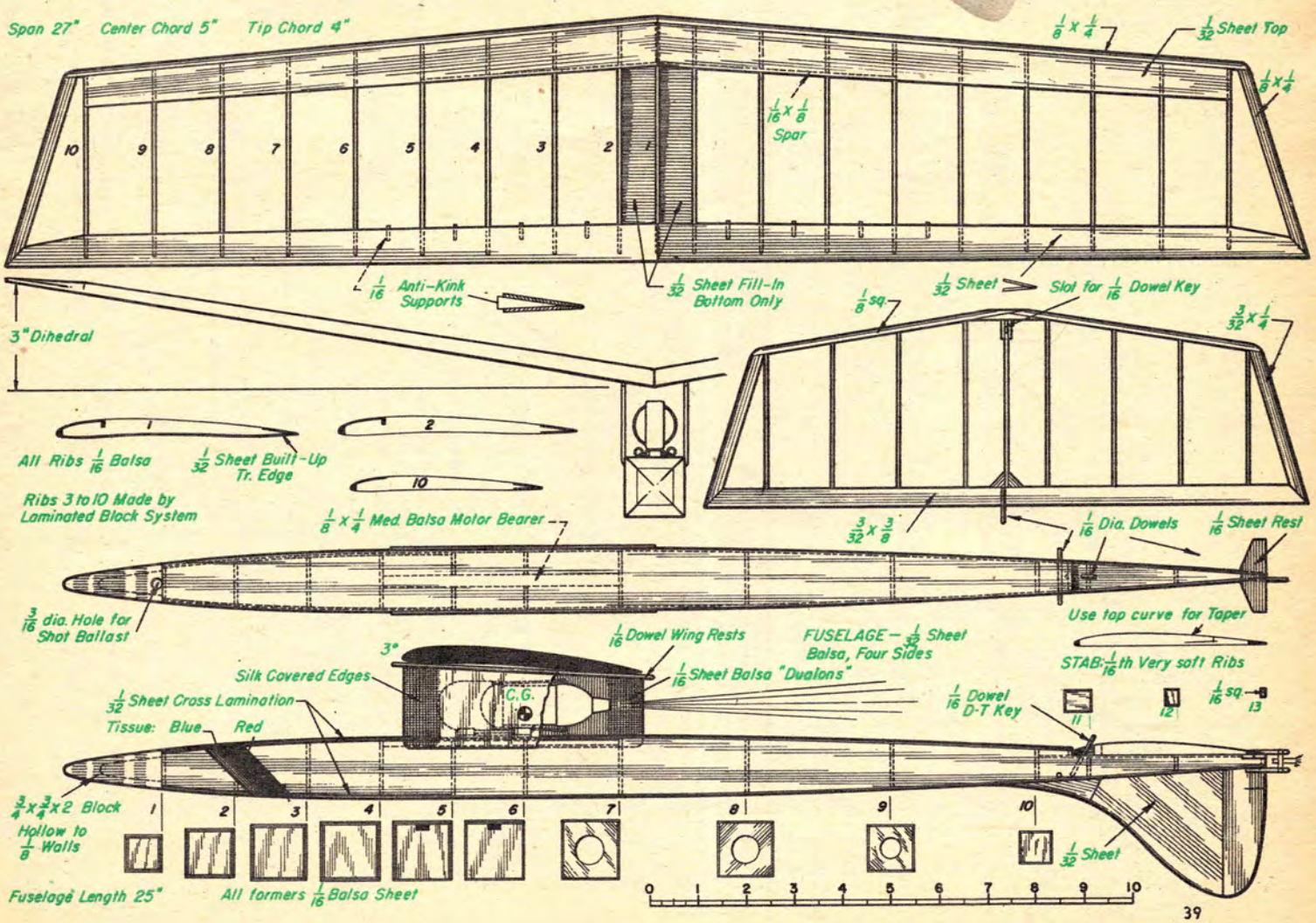
To construct the wing, carefully pin prick out rib #1 into 1/16" medium soft stock. All other ribs are 1/16" very soft stock. Ribs #2 and #10 are plotted on the plan and are used to make ribs #3 to #9 inclusive by the laminated block technique. However, it is best to make up separate blocks for the left wing and right wing because of the taper. Slice out a pair of each of ribs #2 and #10. Sandwich 15 pieces of sheet, cut somewhat bigger than rib #2, between rib #2 and rib #10. Hold them all securely together with two or three pins right through the sides. Because of the soft wood used, with a long bladed knife you can carve a nest of ribs that would take much longer any other way. Check across with a straight edge to make sure your center ribs are down to a true straight line with your end ribs. A little sandpaper will remove slight bumps easily.

Now you will have all the ribs for one wing panel plus 8 dead-heads. Pull the pins out and starting at one end take off the template rib; the next is a dud, the next good, the next a dud and so on till your last rib is the other template. Remove the duds from circulation around your work spot. They are perfectly good but each slightly bigger than required. The purpose of including them at all is just to make the block thicker so the taper will be reduced to a negligible amount. The leading edge end taper is snipped off at assembly and gives a theoretically perfect rib. The whole process will give you a perfectly matched set of ribs, each as accurate aerodynamically as the end ribs. The uniformity will show on your covering job. The old "plot them all and hack" system cannot give this same uniformity and accuracy, unless a metal template for each rib is made—more work than any model is justified in receiving. *(Continued on page 79)*


1/8" X 1/4" TIP
1/32" SHEET T/E TOP & BOTTOM
ANTI-KINK T/E SUPPORTS - 1/16" SHEET
JETEX "150" MOTOR
RIB # 2
RIB # 1
1/8" X 1/4" MED. HARD MOTOR BEARER
TISSUE COVERING
1/32" SHEET L/E COVER-TOP ONLY
1/16" X 1/8" SPAR ENDS AT RIB # 5
ALL RIBS 1/16" SHEET
1/8" X 1/4" L/E SPAR
ALL FORMERS 1/16" SHEET
1/32" SHEET DOUBLED
BLUE TISSUE COVERING
RED TISSUE FLASH
SOFT BALSA NOSE HOLLOWED OUT
BALLAST HOLE
1/16" DOWEL
1/6" SHEET SILK OVER
1/32" SHEET
1/16" DOWEL D/T KEY
1/32" SHEET REINF EA. SIDE OF CENTER RIB
TISSUE COVERED
1/16" HARD STAB. PLATFORM
3/32" X 3/8"
3/32" X 1/4" TIP
1/8" SQ. L/E SPAR
1/16" SHEET RIBS
1/32" SHEET VENTRAL FIN AND RUDDER NOTE DIRECTION OF GRAINS
NOTE DIRECTION OF GRAIN ON FORMERS # 7, 8 AND 9 — ALL OTHERS VERTICAL
NOTE PROGRESSIVE LIGHTENING OF STRUCTURE FROM F. # 7 AFT
DOUBLE SHEETING ON TOP ENDS HERE
DOUBLE SHEETING ON SIDES ENDS HERE
DOUBLE SHEETING ON BOTTOM ENDS HERE



By ALBERT G. ACKERMAN

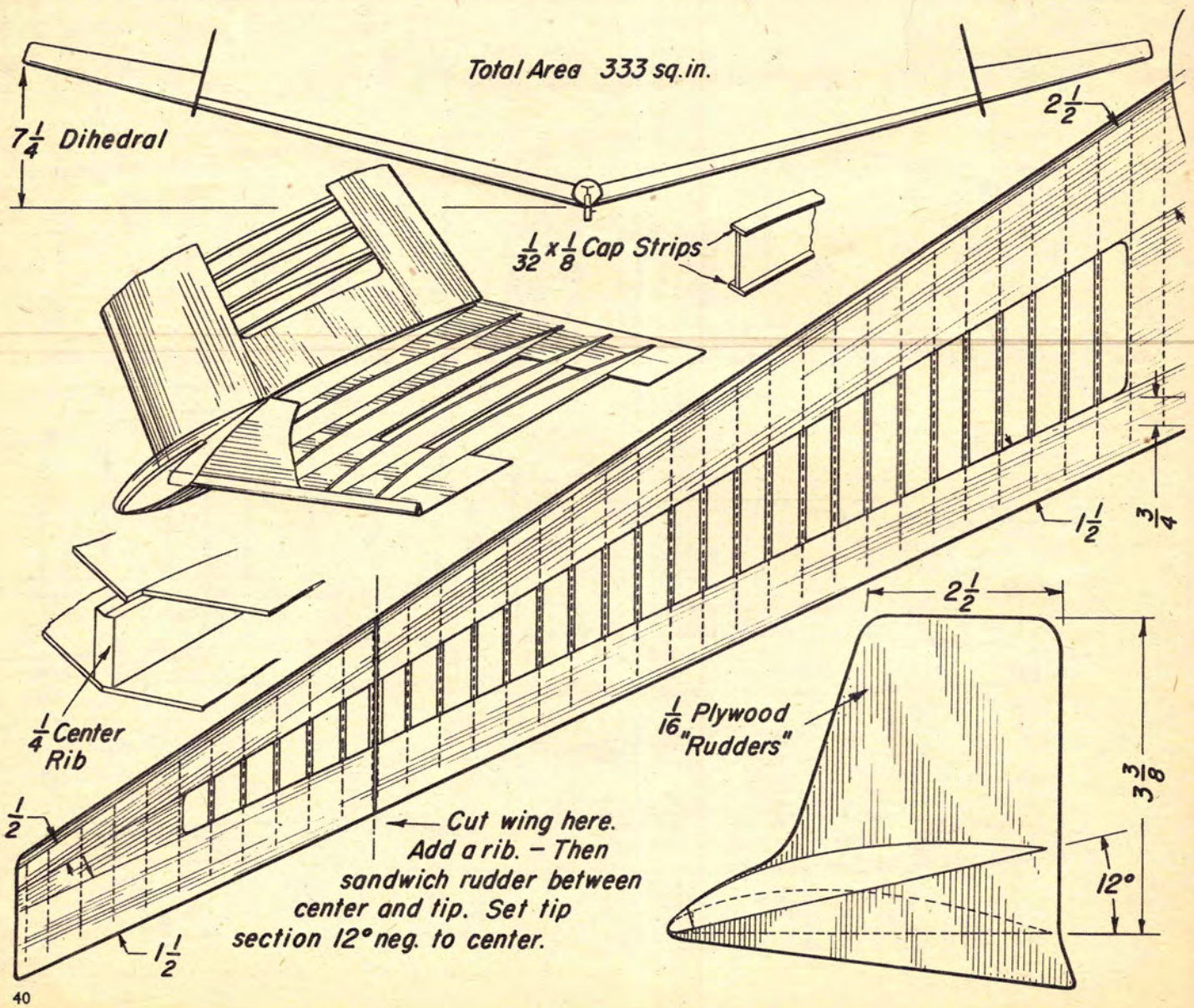

Span 27" Center Chord 5" Tip Chord 4"
1/8 x 1/4
1/32 Sheet Top
1/8 x 1/4
1/16 x 1/8 Spar
1/16 Anti-Kink Supports
1/32 Sheet Fill-In Bottom Only
1/32 Sheet
Slot for 1/16 Dowel Key
3" Dihedral
1/8 sq.
3/32 x 1/4
All Ribs 1/16 Balsa
1/32 Sheet Built-Up Tr. Edge
Ribs 3 to 10 Made by Laminated Block System
1/8 x 1/4 Med. Balsa Motor Bearer
3/32 x 3/8
1/16 Dia. Dowels
1/16 Sheet Rest
3/16 dia. Hole for Shot Ballast
Use top curve for Taper
1/16 Dowel Wing Rests
FUSELAGE — 1/32 Sheet Balsa, Four Sides
STAB: 1/16th Very soft Ribs
3"
Silk Covered Edges
1/16 Sheet Balsa "Dualons"
C.G.
1/32 Sheet Cross Lamination
Tissue: Blue Red
1/16 Dowel D-T Key
1/16 sq.
3/4 x 3/4 x 2 Block Hollow to 1/8 Walls
1/32 Sheet
Fuselage Length 25"
All formers 1/16 Balsa Sheet

Record-holder Robertson with his sixth in a series of flying wing gliders; this established a national record. For sheer fun there is nothing more satisfying than a towliner.

ARIZONA ANNIE

Outstanding in design and appearance, this flying wing model sailplane will give you real endurance

By HARRY ROBERTSON III



■ After experimenting with five flying wing gliders a new design was formulated to be simpler, more rugged, and include all the good points of its forerunners as well as fly better. The main change was a decision to build the tips at a different angle of attack rather than washout the entire wing. This proved much easier to make and more consistent to fly. The result is the plans shown. If you intend to build it, follow the plans closely. Use exactly the same tip angle and above all for good weather flying keep the C. G. precisely as shown since it is with the tip angle and C. G. as indicated that this ship goes best. We have found this to be critical, so be careful!

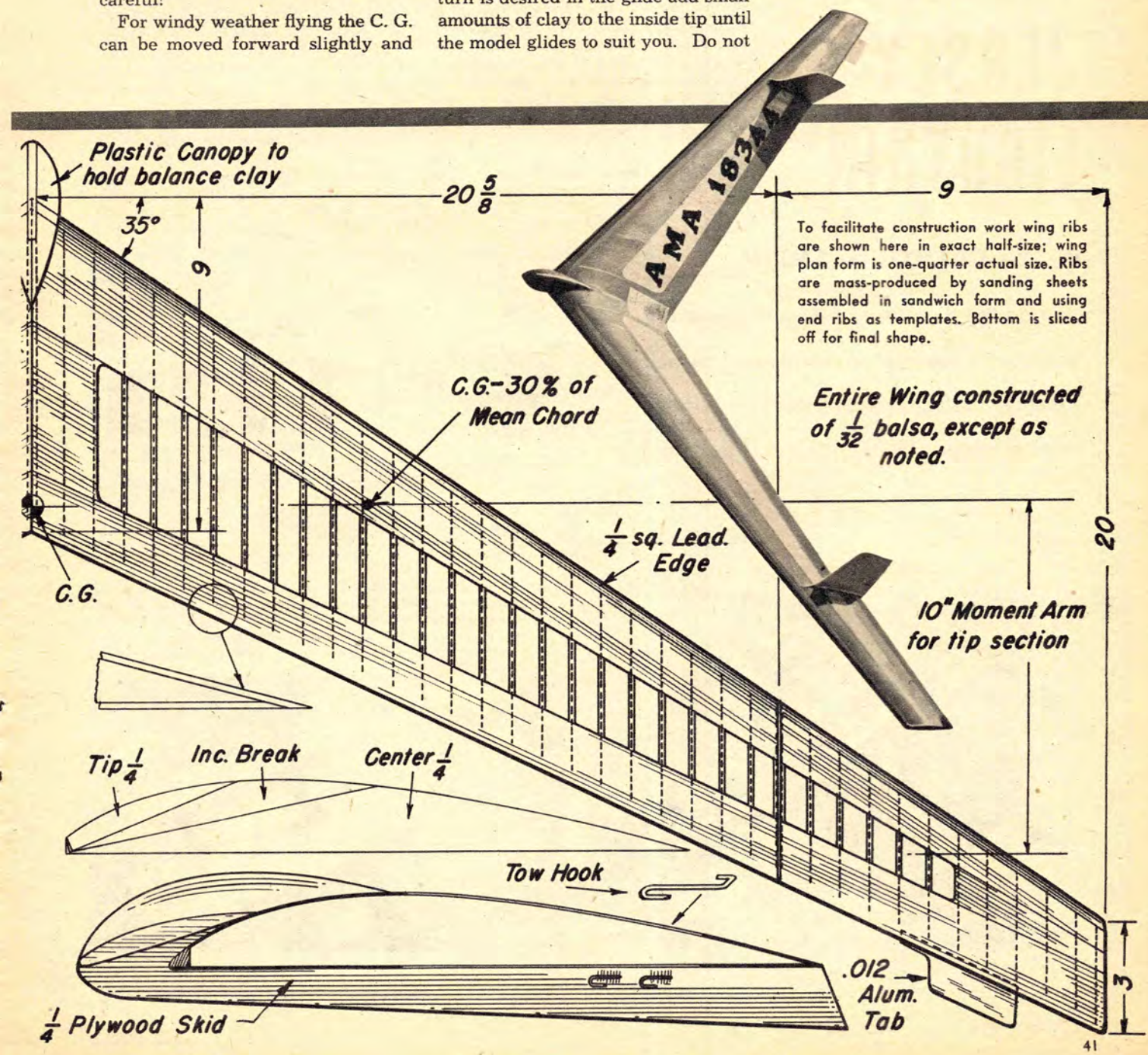
For windy weather flying the C. G. can be moved forward slightly and the tip angle increased. This will result in a ship which will not tow as easily but will give much better flights in the wind.

You might find it rather difficult to hand-glide, for *Arizona Annie* is a little hard to launch. But don't get discouraged; it takes some time to learn the technique—and you'll be glad you did!

For the first tows use a short line not over 100 feet in length. Take it easy and watch the model as much as you can. If it starts to slide off into the ground throw the towline toward the model to release it; *don't take chances.* The tab shown is for towing purposes only; use it to straighten out the tow. If more turn is desired in the glide add small amounts of clay to the inside tip until the model glides to suit you. Do not turn the tab after tow adjustments are made.

Take plenty of time while testing this ship and note carefully its flight attitude; if stalls persist add clay until a rocking slide is made; then you have a near stall glide which is best. You will note that when adjusted this way the ship will not stall completely but will give flights of a type not possible with an orthodox fuselage model.

Wings *are* a challenge; they are more difficult to fly but they will produce good flights much to the amazement of most modelers. They provide a wealth of experience and pleasure. Have fun!


Plastic Canopy to hold balance clay
20 5/8
9
35°
9
AMA 183AD
To facilitate construction work wing ribs are shown here in exact half-size; wing plan form is one-quarter actual size. Ribs are mass-produced by sanding sheets assembled in sandwich form and using end ribs as templates. Bottom is sliced off for final shape.
Entire Wing constructed of 1/32 balsa, except as noted.
C.G.-30% of Mean Chord
1/4 sq. Lead. Edge
C.G.
20
10" Moment Arm for tip section
Tip 1/4
Inc. Break
Center 1/4
Tow Hook
.012 Alum. Tab
3
1/4 Plywood Skid

"Firing up" with chief mechanic Cal Jr. as the anchor man. That's a Berkeley 27 mc. transmitter at the left. Can't you imagine some of the C/L fans thinking to themselves, "What a control line it would make!" But R/C for us!

JERSEY LIGHTNIN'

By S. CALHOUN SMITH

Cal decided to have himself some fun with a radio-controlled model which closely follows the Goodyear-Continental racers. Scoots like scalded cat!

■ You should hear the comments when this ship appears on the field: "Where are the control lines?" or "Pretty big team racer, ain't it?" Then when the gang finds out it is an R/C job they just kinda shake their heads, mutter a bit and walk away. But they come back in a hurry when this baby gets airborne and roars off like a scalded cat.

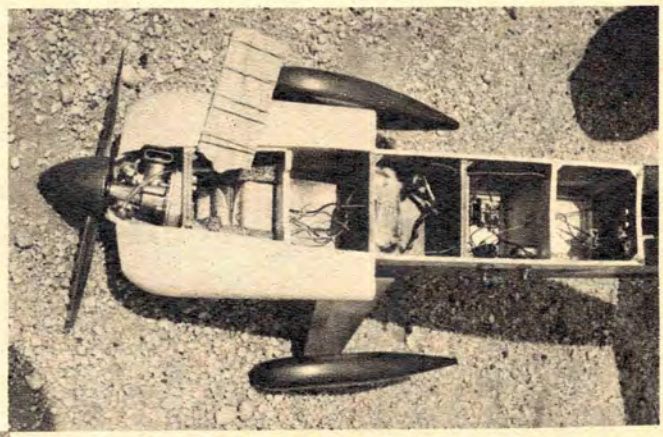
Seriously, though, after watching lots of R/C flying, putting in considerable time ourselves on blip-button-flying the typical high-wing R/C design we decided on a design that more closely approached our favorite full-size airplane—the Continental (Goodyear) Racer.

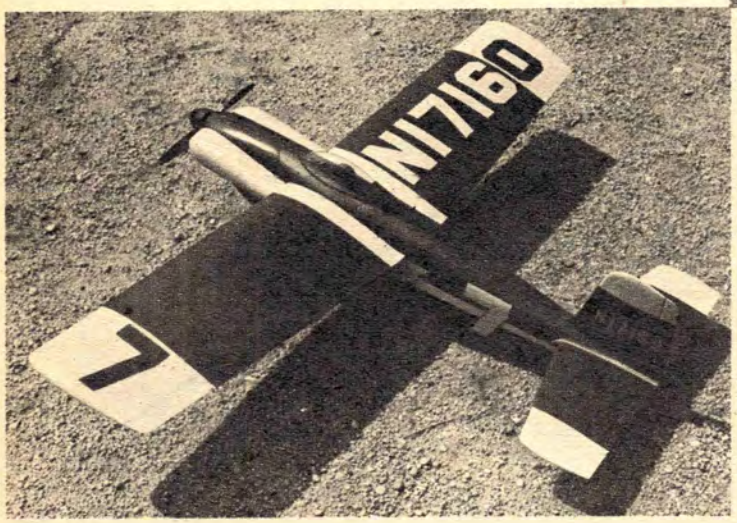
The design you see here is the result. Numerous flights have de-bugged it to the point where flying leaves little to be desired. The ship is fast, climbs steadily and has just enough lateral stability to hold altitude when blipped around a turn. Hold the full rudder on and it starts down after about 180 deg. of turn and builds up speed quickly for looping and other stunts. Recovery is good and steady climb grabs back altitude easily. Glide is fast, so fly this job with plenty of open space.

Bucking a 20-25 mph wind with a conventional R/C job is sort of like flying a helicopter in hovering flight, and since the wind is no respecter of R/C flyers, we put enough power in this bomb to take care of windy weather flying. Of course if it's going to fly fast, chances are you'll bend up the airplane more frequently, so construction is extra rugged. Liberal doses of our favorite ingredients, plywood and Weldwood, were applied with good crash-proofing results.

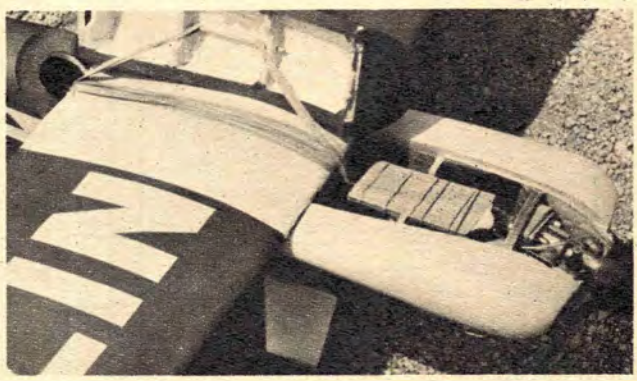
Except for the shoulder wing and relatively high power, *Jersey Lightnin'* follows typical R/C configuration. Span is 52", aspect ratio 5 to 1 with 500 sq. in. area, airfoil is 10% thickness. Tail moment is 45% of wing span, stab area 25%, fin area is 7%. Nose moment is nearly equal to mean chord. Dihedral is 4 deg. and wing, tail incidence difference is 3 deg. Strong left turn and stall tendencies showed up immediately on test hops. Downthrust and right thrust were added on successive flights until smooth straight climb resulted. Thrust offset required became quite large, 6 deg. down and 8 deg. right with the K&B .19 engine swinging a 10D-3½P. prop. Weight came to 4 lbs., 6 oz.—pretty heavy, so wing loading is 14 oz./100 sq. in. or 20 oz./sq. ft. A few test hops were made with an Arden .19 up front and ship flew well but a K&B .19 was later used for greater speed.

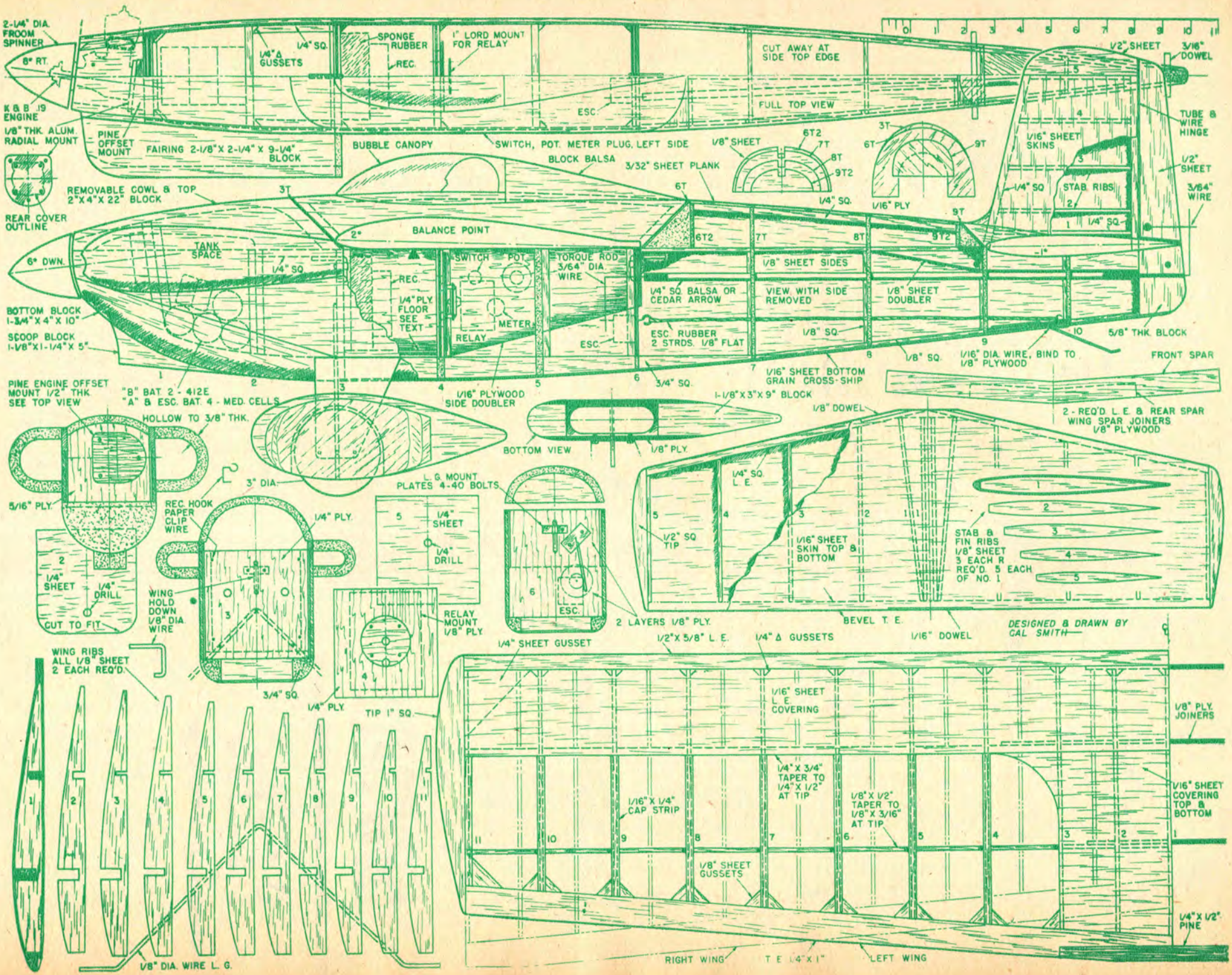
Radio gear is home-built 27 mc. two-tuber, with Sigma relay on Lord mount. Battery (*Continued on page* 57)



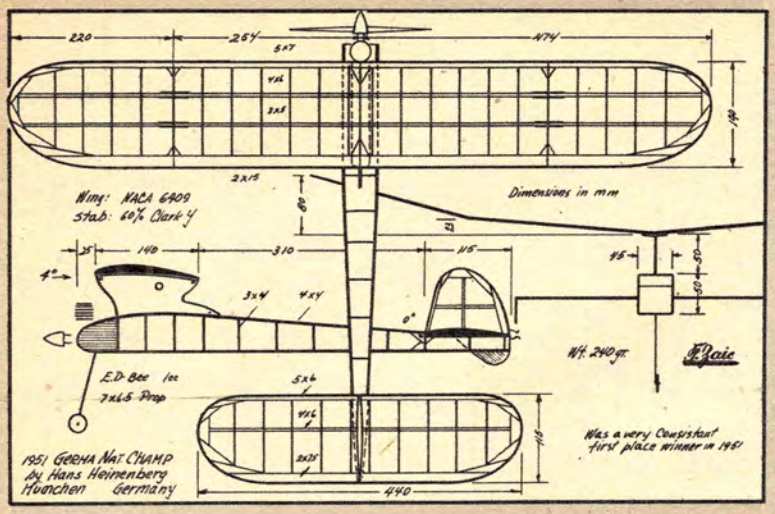


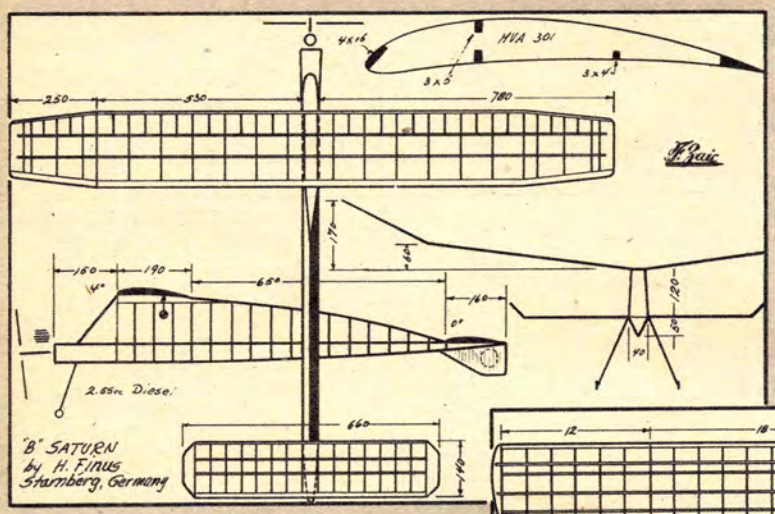
The works!—above. K&B .19 with offset thrust mount pad and pressure tank. Batteries are packed in sponge rubber. Receiver mounted on sponge rubber. Relay on Lord mount, other plumbing and escapement in position ready to go. Top hold-down is rubber bands over dowel in top, then over fuselage pegs.




2-1/4" DIA. FROOM SPINNER
8° RT.
K & B .19 ENGINE
1/8" THK. ALUM. RADIAL MOUNT
REAR COVER OUTLINE
PINE OFFSET MOUNT
FAIRING 2-1/8" X 2-1/4" X 9-1/4" BLOCK
1/4" Δ GUSSETS
1/4" SQ.
SPONGE RUBBER REC.
1" LORD MOUNT FOR RELAY
ESC.
CUT AWAY AT SIDE TOP EDGE
FULL TOP VIEW
1/2" SHEET
3/16" DOWEL
TUBE & WIRE HINGE
1/16" SHEET SKINS
1/2" SHEET
3/64" WIRE
STAB. RIBS
1/4" SQ.
BUBBLE CANOPY
SWITCH, POT. METER PLUG, LEFT SIDE
BLOCK BALSA
3/32" SHEET PLANK
1/8" SHEET
6T2 7T 8T 9T2
3T 6T 9T
1/16" PLY
REMOVABLE COWL & TOP 2"X4"X 22" BLOCK
BALANCE POINT
TANK SPACE
6° DWN.
1/4" SQ
REC.
SWITCH POT.
METER
RELAY
1/4" PLY FLOOR SEE TEXT
TORQUE ROD 3/64" DIA. WIRE
ESC.
1/8" SHEET SIDES
1/4" SQ. BALSA OR CEDAR ARROW
VIEW WITH SIDE REMOVED
1/8" SHEET DOUBLER
ESC. RUBBER 2 STRDS. 1/8" FLAT
1/8" SQ.
5/8" THK. BLOCK
1/16" DIA. WIRE, BIND TO 1/8" PLYWOOD
1/8" SQ.
BOTTOM BLOCK 1-3/4"X 4" X 10"
SCOOP BLOCK 1-1/8"X1-1/4"X 5"
3/4" SQ.
1/16" PLYWOOD SIDE DOUBLER
1/16" SHEET BOTTOM GRAIN CROSS-SHIP
FRONT SPAR
2 - REQ'D L. E. & REAR SPAR WING SPAR JOINERS 1/8" PLYWOOD
PINE ENGINE OFFSET MOUNT 1/2" THK. SEE TOP VIEW
"B" BAT. 2 - 412E "A" & ESC. BAT. 4 - MED. CELLS
HOLLOW TO 3/8" THK.
BOTTOM VIEW
1-1/8"X 3"X 9" BLOCK
1/8" PLY.
1/8" DOWEL
5/16" PLY.
3" DIA.
L. G. MOUNT PLATES 4-40 BOLTS
REC. HOOK PAPER CLIP WIRE
1/4" PLY.
1/4" SHEET
1/4" DRILL
CUT TO FIT
WING HOLD DOWN 1/8" DIA. WIRE
RELAY MOUNT 1/8" PLY
1/4" SHEET GUSSET
2 LAYERS 1/8" PLY.
1/4" SQ. L. E.
1/2" SQ TIP
1/16" SHEET SKIN TOP & BOTTOM
STAB & FIN RIBS 1/8" SHEET 3 EACH R REQ'D. 5 EACH OF NO. 1
BEVEL T. E.
1/16" DOWEL
DESIGNED & DRAWN BY CAL SMITH
WING RIBS ALL 1/8" SHEET 2 EACH REQ'D.
3/4" SQ.
1/4" PLY.
TIP 1" SQ.
1/2"X 3/8" L. E.
1/4" Δ GUSSETS
1/16" SHEET L. E. COVERING
1/4" X 3/4" TAPER TO 1/4" X 1/2" AT TIP
1/16" X 1/4" CAP STRIP
1/8" X 1/2" TAPER TO 1/8" X 3/16" AT TIP
1/8" SHEET GUSSETS
1/8" PLY. JOINERS
1/16" SHEET COVERING TOP & BOTTOM
1/4" X 1/2" PINE
1/8" DIA. WIRE L. G.
RIGHT WING
T E 1/4" X 1"
LEFT WING

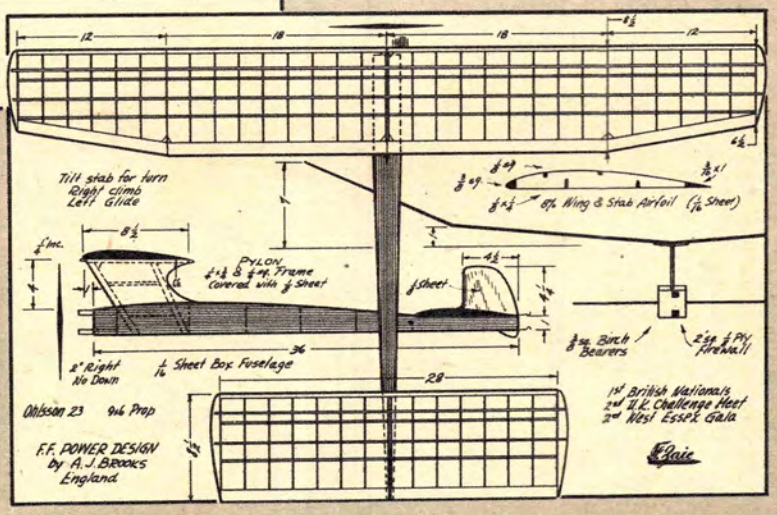
NEW OPUS BY ZAIC

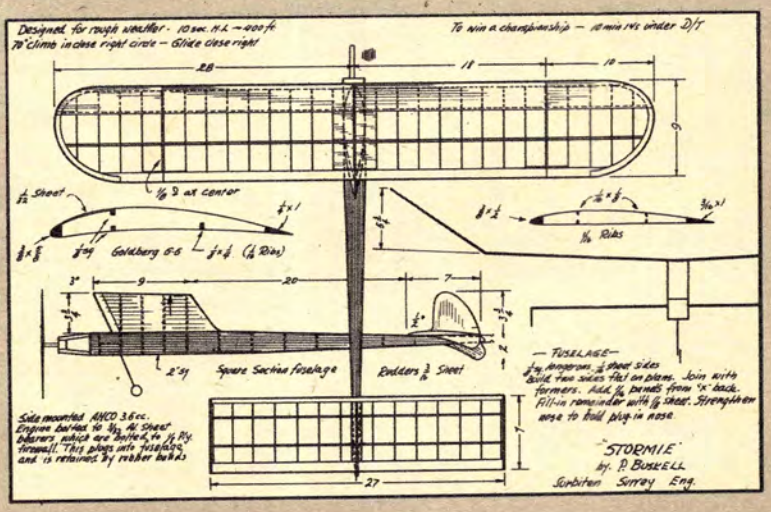




With his usual show of modesty Frank Zaic publicizes his new Model Aeronautic Year Book for 1953 ($1) as having "over 100 plans from all over the world." A hasty count indicates there are more than 120 valuable reference-plan drawings done in the now-famous Zaic style. All this plus much technical data and illustrative sketches! Obviously a "must" for every serious-minded air-modeler and would-be designer.

Rocket deltas, free flights, and control line trainers come in for some extensive treatment as well as the lesser known microfilm record holders. Model designs are by the world's finest. A few: Brooks, Ehling, Bilgri, Dolby, Hofmeister, Lidgard, Cole, Crisp, McCullough, Conover, Marsh, Taibi, Perryman, Slobod, Boyle, Foster, van Hattum, Wright, Schoenky and Lanzo.




Designed for rough weather - 10 sec. H.L. - 400 ft.
70° climb in close right circle - Glide close right
To win a championship - 10 min 14½ under D/T
Goldberg 6-6
Rolls
Square Section fuselage
Rudders 1/16 Sheet
— FUSELAGE —
Side mounted AMCO 3.5cc.
"STORMIE"
by P. BUSKELL
Surbiton Surrey Eng.

the thrill of JET POWERED FLIGHT!

Just to look at a Jetex engine is an exciting experience . . . for it gives the impression of power and speed . . . and makes possible models of exceptionally clean design and simple construction.

But the real thrill comes when you fly a Jetex-powered model. You insert the fuel pellet and the igniter wick . . . place the engine in its mounting clip . . . light the wick.

In a few seconds you see the high velocity gas stream come out . . . and then you feel your model pulling forward as thrust exerts itself. The plane wants to leave your hand and speed skyward. A gentle launch and she's off . . . to a beautiful flight without starting problems, vibration or torque to mar its flight and your enjoyment.

Fly a Jetex-powered model. Discover for yourself the thrill of jet-powered flight.

AND NOW TWO GREAT NEW JETEX ENGINES
in addition to the popular #50 and #150

A new improved model of the famed #50. Designed for use with augmenter tube in scale models. Built for highest efficiency and greatest reliability.

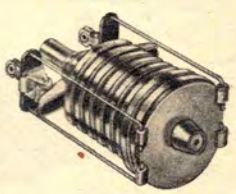
SPECIFICATIONS: Thrust ¾ oz. Duration 12 seconds. Wt. (with fuel and augmenter tube) ½ oz. Length 2", Diameter ¾".

$2.95*

Jetex #50 Contest Special

Jetex Scorpion "600"

The most powerful and efficient Jetex engine yet developed. Thrust exceeds weight by nearly 300%. Produces peak thrust from beginning of run.



SPECIFICATIONS: Thrust: 6 oz. Duration: 10 sec. Wt. (with fuel and augmenter tube) 2.2 oz. Length 2¼", Diameter 1¼".

$8.95*

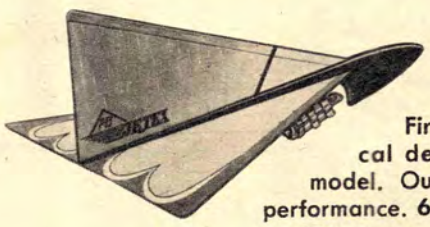
*includes augmenter tube, fuel and accessories

MODELS FOR THE JETEX "50" JET ENGINE

McDonnell F88A "Voodoo"

Free-flight scale. *Aeroformed construction.

$1.25 *TM Reg.

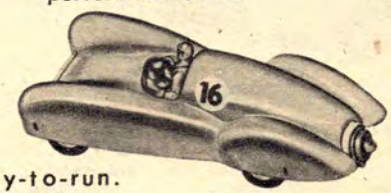


P-13

First practical delta wing model. Outstanding performance. **65c**

Helicopter

Completely pre-fabricated. Includes 2 Jetex #50 engines and fuel. **$5.95**



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Insignia Red	Insignia Blue	Clear
Maroon	Aircraft Gray	Insignia White
Orange Yellow	Olive Drab	Sanding Sealer
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TESTOR CHEMICAL COM

LOOK! ALL THESE FEATURES... and hot fuel proof, too!

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Testors Butyrate Dope brushes and sprays easily without gumming and pulling. Dries to a smooth surface.

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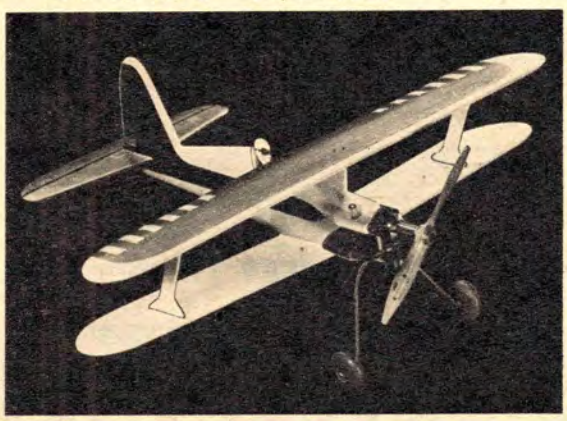
STUNT RUNT $1.25



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Length . . . . . 14"

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NEXT MONTH!

Our ad will feature our amazing new ½ A stunt model. Your dealer will have this new kit soon. Watch for it!

• • •

JOY PRODUCTS COMPANY
Menominee, Michigan

Baron

(*Continued from page 25*)

and cautiously assembled above in the new and unfamiliar pattern. There were three flights of five planes each; each flight was in a Vee formation, the three Vees making up a larger, loose Vee with Brown's flight, distinctive because of its planes' cherry-colored noses, in the lead position.

Climbing steadily, the squadron approached the lines, crossed them to the accompaniment of blistering anti-aircraft fire, and determinedly probed into the enemy air zone. At 12,000 feet, with a "chip-on-the-shoulder" attitude, it swung onto the patrol path. The throaty, bass roar of fifteen engines flooded the unlimited space with a deafening pulsating sound that shut out all other.

Wings glistening dully in the sunshine, rising and falling gently, like small boats on soft sea swells, the planes prowled the sky, each pilot alone with his thoughts, each warily scanning the surrounding air for signs of the enemy.

May, sitting stiffly in his bucket seat, was flying in the last position on the left leg of Brown's flight. A thin, gauze-like haze lessened visibility, but in the distance he could just barely see the front sectors, jagged and overcast with smoke. Pin-pricks of gunfire occasionally penetrated the pall of smoke and haze. Here and there, miniature infernos blossomed forth from dueling artillery emplacements.

An hour droned by; a dull, boring hour that rasped tight nerves keyed for action. Then came the first break in the monotonous patrol, a prelude to the battle to come.

Shortly after the squadron completed a turn at the north limit of the patrol, May was startled to see a great gout of black smoke, like a suddenly opened umbrella, lift and hang ominously in the clean sky above Beaucourt.

He was unaware that one of his squadron mates in the rear had spotted a German Albatros D-5, slipped up on it, and sent it down in flames with the first burst. Several other Camels had trailed after the aggressive pilot, giving him tail protection, and then more Camels, their pilots sensing action at last, had broken formation and raced after the trio.

Brown saw the flaming Albatros fall earthward; glanced over his shoulder and discovered that the squadron had been halved and scattered. There was still his own flight and a couple of more Camels straggling in the rear. Unperturbed and restless for action himself, he led his reduced numbers south and towards the east, deeper into Hunland.

A few minutes later, May sees fat, white, bursting puffs blossoming in the air near Cerisy. He recognizes them as British anti-aircraft fire (German A. A. is black). Brown, too, notices and studies the bursts and then swings his little group towards them. British A. A. fire signifies enemy planes in the vicinity.

Intently probing the area of the bursts, the flight leader sees nothing at first. Then, in the distance, a brace of R.E. 8 observation planes darts into his vision. Turning and twisting, they are struggling to shake off four hungry enemy Fokker triplanes. The hard-pressed pair of planes is flying at approximately 3,000 feet. They are old, slow creaking two-seaters, and no match for the dancing triplanes.

Brown waggles his wings, the signal for attack, thrusts the control stick forward, and slams downward in a long, bowling dive toward the uneven engagement. His mates promptly follow. Suddenly, as he closes the gap, he spots five or six additional Fokker tripes diving through the haze to intercept his group.

At almost the same moment, he sees, further over, near Sailly-le-sec, a flock of German Albatros D-5's engaged in a circling, tumbling combat with unidentified Allied planes; possibly the remainder of No. 209. Even as he watches, a number of the Albatroses are disengaging themselves and racing towards the Fokker-R.E. 8 Camel gathering to join in the mêlée that will soon ensue.

Brown has other ideas, though. He instantly yanks back the stick, levels off, pulls his men away, and swiftly studies the situation. He estimates the enemy strength to total at least twenty planes; he has seven, including the novice, Wop May. Heavy odds.

Then he notices something else. The German planes are blatantly painted in various gaudy hues. There is only one Jerry outfit which sports such startling color schemes—Jagdgeschwader 1, commanded by von Richthofen. Loaded with the Kaiser's top scout, or fighter, pilots, it is a rough, tough, talented organization. Because of its violent colorings, British airmen, long before, named it Richthofen's "Circus."

There is nothing thin about Brown's blood; he and his companions of 209 have tangled often with the Baron's Circus in the preceding weeks, successfully, too. But he is under strict orders to use caution and take no unnecessary risks; the pilot shortage is still acute and none is expendable.

The plight of the overwhelmed R.E. 8's, their crews desperately attempting to fend off the slashing attacks of the enemy and run for home, leaves him no alternative. He signals again, and again the Camels dip their noses and dive like the wind with wings. All but one.

(To be continued)

Western

(Continued from page 34)

Wayne Schindler 88 and 1.03 with a Fokker D-111, Walt Mooney 88 and .35 with a Lockheed Alcor. One has to go all the way down to 19th place in open before a duplication of models is found, that one a Curtiss Robin.

In Junior-Senior the five out of the first six places were copped by Taylor Cubs. All in all, Bill Effinger should be real pleased with the Boikely showing.

Comments on the contest from the guys who participated indicate that the Saturday evening processing accompanied by the movies was a very good idea. The movies shown consisted of past Half-A scale contests and various other events in which the club participated.

The WAM had two contests in the past month—the first sponsored by the Woodland Prop Busters at the Yolo County Fair and the second at Watsonville sponsored by the Plymouth Aero Club League and Plymouth Dealers. The first at the fair had no speed, so it was quite obvious that a lot of names were missing. The results were practically devoid of mention of "Hell's Angels of Napa" which we have become so accustomed to seeing in Pop and Mom's sheets. Only Harold Nevins who won third in A-B beginner was in the winner's circle, but the two who beat him, Charles Boggs and Mary Corum, have advanced in flying status, so he was beaten by two top contestants. This gal, Mary Corum, is cutting quite a caper for one who started flying just this year—she's more than holding her own with the opposite sex.

We got a big chuckle out of one trophy

"Pearson, here, built P-40's during the war."

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Boy, Santa, Does that Everglades Buggy move over the water!

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*Check this list and give it to Dad or Mom to mail to Santa

☐ LITTLE SAILER KIT E-3 .75

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☐ J-2 Russian MIG-15 75
☐ S-1 Mustang 50
☐ S-2 S.E. 5 50
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and its title "Most Gruesome Crack-Up." The winner—Lanny Copeland of the Modesto Flying Circus; we don't know what kind of competition Lanny held or who changed the title from "Worst Crackup," but it can be said that "Most Gruesome" is quite appropriate, much better than the old.

That guy Lenderman managed to get to this one and picked up two firsts—John surely must not be accepting all those trophies for if so he would require a 20-room house to keep them in. We notice Bob James way up on top again—Bob is piling up some pretty high points; it doesn't look like he will be flying in the advanced group much longer.

Ah-ha—Watsonville—the "Hell's Angels" were there! Arnold Nelson, Karl Caldwell, Bob Wakerley, Gordon Wheeler, et al., and to prove just another point, that guy Nelson upped the B speed record by almost 6 mph to 134.77; beating the old record didn't do Karl Caldwell much good for he finished second. Those guys are running away from all opposition, good flyers in all classes, top men in all flying groups. Looks like the handicap for A jobs will be upped; it was 1.25 before Arnold's hot flight. The WAM use a percentage basis for handicaps based on comparable speeds; for example, in Proto, A models get 25.28 mph, B's 16.15 and C's 8.21. Boy, we can't think of a better way.

Bob Palmer took the long way home after this contest. Not only did he have Lenderman to compete against, but Rudi Aron with a super beautiful ship topped him in A-B. Les Perrings also nosed out Bob in the event. If we are allowed to use Palmer for a criterion, those guys must really do a lot of flying. Bob has been tops in many backyards, but it looks like that WAM backyard is one place to stay out of.

We notice the first results of Mr. and Mrs. Ray Randall's drive for more flying scale. The beginner and advanced groups have

their own little contest. According to Ray, others are starting to see the finer points of model building. Hope he hasn't made a mistake, for some day he might find himself following these beginners to the award table. But seriously, they love competition—sort of keeps a guy from going stale, makes him build new and better models, and that ain't bad.

Several fellows moved up to higher flying status at this meet—Henry Clary and Neil Brink from speed A-B beginner, Tim Youngger and Lewis Takacs from stunt A-B beginner, Ralph Saldwer and Dusty Wright from Stunt C-D beginner and last, but not least, Don Corum from stunt A-B advanced to expert.

The San Diego Aeroneers First Annual was well attended, both U-control and Free Flight in one day. The contest was ably handled by Jim Saftig and Gary Witt with great big assists from the women who took in all the money, as usual, and Ed Romminger. Nordic entrants were very few, limited rubber likewise. Half-A speed got a big play as did the free flight events. One instance in Half-A speed still leaves a lot in doubt as to how it happened. One particular "delta" was launched to a slack line; during this portion of the flight it managed to fly about 50 feet (on slack lines), then do a 360 degree roll; the ship righted itself and clocked in a good flight. Names cannot be mentioned, but P.A. announcer Merv was heard to comment, "That's the way it

is done in Pomona." Wow! Zowie!

Wakefield and FAI teams are becoming a normal topic of conversation out West here, with fellows wondering just how the teams should be picked, where the contest will be held, when, and many other questions. The guys vary a little on the Joe Foster-Dave Kneeland position.

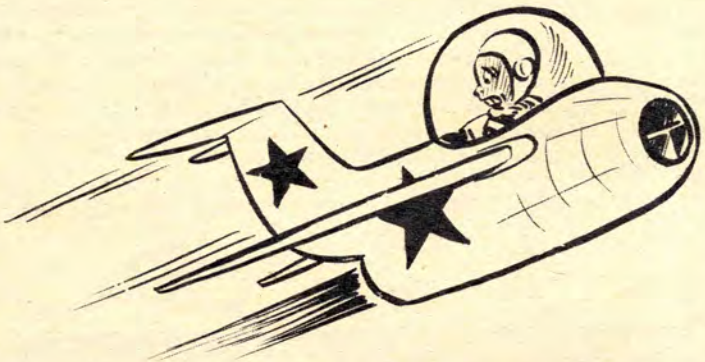
Speaking for ourselves, we are glad those guys won it and that we are not in their position. Denny Davis is of the opinion that seeing how they went to England and won and seeing how in the past the winners automatically became team members, that Joe and Dave should be considered on, for next year. Perhaps precedent was set in Korda's instance when complaints were made, but Dick made it without being automatic—he flew in the eliminations and won.

Along these same lines Paul Gilliam thinks that both Joe and Dave should compete for the right to become team members. Paul states that the contest will not be held under the same conditions. (We think it would be wonderful to get days like those in England for our run.) He also has several good ideas which should be presented. Taking nothing away from these two top flyers, the Wakefield rules are changed for next year; entirely different models will be used, more flights must be made. He feels that we must prove we have these top new models.

On the FAI side, Paul believes that great improvements will be made, that this is a new, relatively untried size of model and that there will be a lot learned from our small amount of experience. (Note! If someone is able to do better than three fives, we think Dave himself will be the first one to step down. . . . But beat three fives?)

These comments must be absorbed with an open mind, team effort alone must stand before any and all personalities, sound judgment is necessary. We have established ourselves in the eyes of the modelers' world, proven that as model builders we know what we are doing, as model flyers we were the best. The big question is, are we worthy of these honors which Dave and Joe have brought back? Can we stay on top by doing it again?

—DICK EVERETT



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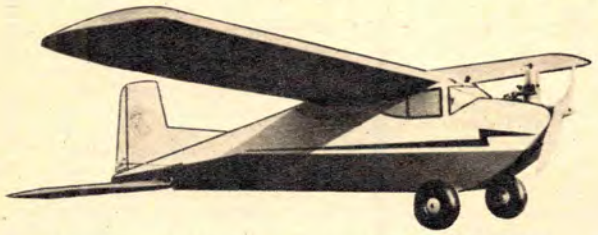

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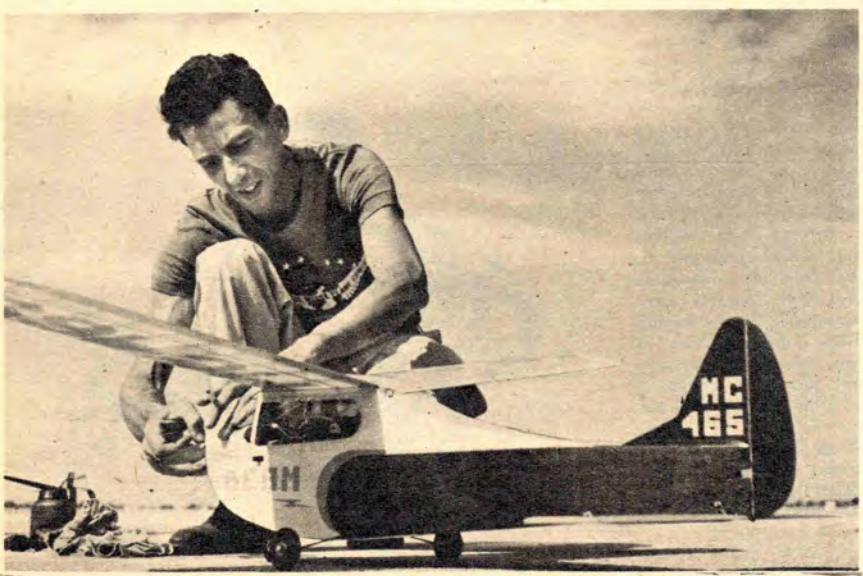
Bill Johnke of Uniondale, L. I., fires up modified Brigadier radio job which captured second for him at Plymouth Internationals. Own receiver, Control Master transmitter.

Third place at Plymouth went to Frank J. Madl, Chicago (rt.). Flew much-modified trike gear Custom Cavalier. Orwick .65 power. Motor, rudder and elevator control.



Topman at Selfridge AFB in the Internats' radio control was Lou Andrews of Norwood, Mass., flying a McCoy .09 powered "Beam" utilizing motor, elevator and rudder control.

R/C NEWS

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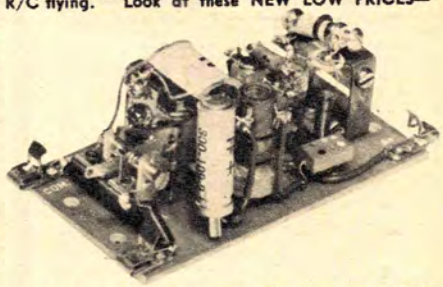

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Citizen-Ship SN escapement..... $ 9.95
Good Bros. 4 position escapement..... 13.50
Bell Crank and Rudder Horn..... .75

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PE157 SUPPLY for MAC II Transmitter—less Speaker $11.95
SIGMA 4F RELAYS $4.50
OSR type Quench Coils $1.65
WHIP ANTENNA, 3 Sections, 9½ ft. $2.35
Antenna with Base Mount $2.85
FLEA CLIPS—4 for 10c; **ALNICO 5 Disc Magnet**—for Rudder Control $1.15

TRANSMITTERS, 27.255 Mc.

New!! SUPER-POWER GYRO-MAC II R/C TRANSMITTERS. Guaranteed extra-long distance Radio Control with **NEW ANTENNA SYSTEM!** Full 5 Watt Power. Similar to MAC II Design.
MODEL X1—GYRO-MAC II 2 Tube Transmitter. Complete, tested, ready for use. Mounted in attractive portable case with carrying handle, built-in meter, Super Antenna System, vibrator power supply, battery, etc. Ready for use anywhere! **GUARANTEED** $37.50
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MAC II TRANSMITTER KIT—All the parts needed to build the famous MAC II described in May "Air Trails". (Except PE 157 Case, meter, antenna). Kit includes tubes, 27.255 Mc. Crystal, switches, tuning condensers, resistors, capacitors, wire, solder, etc. $12.95

RECEIVER KITS

For Radio Control—Parts Packages for any following Receivers, including diagram & all parts (except tubes, relay, OSR coil)—**LORENZ 2 Tube; MILLER; SIMPLE SINGLE** $2.85
RECEIVER KITS—with all parts including tubes. **SIGMA 4F Relay, etc. LORENZ—$14.25; MILLER—$10.50; SIMPLE SINGLE** $10.35
R/C RECEIVERS—any of above Kits wired & tested—ready for use—**ADD** $5.00

SPECIAL!

TRANSMITTER AND RECEIVER KIT—Kit $9.95
Kit of Parts and diagrams (less tubes & crystal) To build famous **MAC II TRANSMITTER UNIT** and famous **LORENZ RECEIVER.** Sigma 10,000 ohm relay included.

DYNAMOTORS

6 Volt input/180 Volts @ 225 Ma. output $9.50
6 Volt input/350 Volts @ 225 Ma. output $9.50
6 Volt input/180 Volts @ 50 Ma. output $7.95
CRYSTALS—27.255 mc., Peterson Z9A $4.75
Crystal Holder 15c

RELAYS

SIGMA 5F—Dual Coils—10,000 ohms $5.95
SIGMA 41FS—Sensitive 10,000 ohms—SPDT $1.95
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NT6—Miniature 6 volt. 2½" by 1¾" by 3¼" $2.45
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0-1 Ma. $3.75 0-3 Ma. $2.95
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New Tubes—GUARANTEED—Low Prices

RK-61 ....$3.45	XFG-1 ....$3.35	3D6	$ .95
1S4 ..... 1.35	1V5 ..... 1.95	3A5	1.35
1S5 ..... 1.10	3A4 ..... .95	3S4	1.35
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COMPLETE RC OUTFIT E.D. Aristrol Receiver Transmitter Escapement $57.50
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FLEAWEIGHT HOOKUP WIRE—25 ft. (5 Colors) .. 25c
SOCKETS—Mini Hearing Aid—4 or 5 pin—15c; Mini 7 pin—10c; Loktal ..... 25c for 2
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repair defective relays—3,000 or 10,000 ohms $1.10

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R/C MODELS

NEWS AND COMMENT BY HOWARD McENTEE

Unbreakable R/C Receiver. The mortality among receivers is high, especially if you like to experiment with your own plane designs. Why not put the receiver into a box that will protect it? That's just what George Trammell (1815 26th St., Gulfport, Miss.) has done. The circuit is the usual two tuber, with an XFG-1 in the first position. The second tube may be any of quite a few types, such as RK61, XFG-1, 1AC5, 1V5, 2E36, etc. The receiver weighs about 1¼ oz., less relay. Latter is shock-mounted separately. No tube sockets are used—tubes are soldered into circuit. Coil is slug-tuned and the antenna series condenser is also of the slug type. The only "chassis" is two pieces of bakelite, which are held together by the components soldered between them. George has had better results with at least 50 V. on the first tube; he uses one 22½ and one 30 V. hearing aid battery for this. After the tubes age a bit, he installs two 30 V. units.

The receiver is mounted in the rear of the cabin where batteries and other heavy objects cannot damage it. Plastic cases of the type shown may be had in most fishing tackle shops.

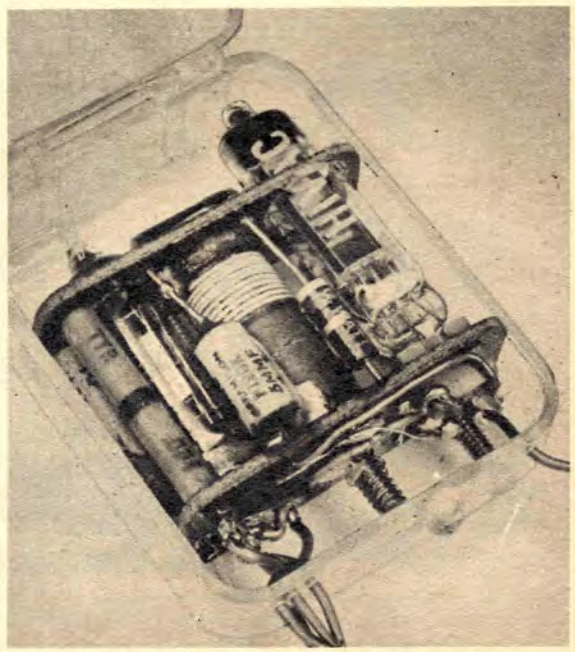
Contests and Clubs. Radio control event was included for the first time in the Plymouth International Meet, held in Detroit. Though entrants in other Plymouth events are in three age groups—all under 21—the R/C event was an Open affair, as far as age went. However, entrants had to be either those in three regular age groups, or if over this, to be AMA Leader members who had been active in promotion of Plymouth Aero League groups. Latter requirement was doubtless what kept entry list small—about 12 entrants.

Winners were: 1—Lou Andrews (Norwood, Mass.), 74 points; 2—Bill Johnke (Hempstead, N. Y.), 32; 3—Frank Madl (Chicago), 28. Standard AMA R/C rules were used, so it can be seen that the judges were tough! High point of the competitive flying was consecutive loops by Andrews with his Beam; he also made fine spot landing. Interesting to note that Director of entire Plymouth Meet, Warren Bartlett, is an active R/C flyer; he did not compete, however.

The top place award was given to Lou by K. T. Keller, Chairman of the Board, Chrysler Corp., and until recently Director of the Guided Missile Program for the U.S. Mr. Keller stated that he and his associates considered R/C model plane work to be of tremendous value in developing new missile ideas, and in acquainting a large group of individuals with the technique and practice of remote controlled flying. Director of the R/C event was Mike Thomas, whom we are very glad to see come out of "retirement" and get into active R/C work again.

The Annual Model Flying Fair sponsored by the N.Y. *Daily Mirror* was held at Floyd Bennett field this year. Approximately 25 flyers battled for the fine array of prizes, top man being Frank Jacobs (Woodridge, N. J.), with 195 points, using Rudderburg, prop. rudder, elevator and motor on Compound; 2—Fran McElwee (So. Plainfield, N. J.), 162 pts., Robot with rudder only; 3—Phil D'Ostilio (Fairfield, Conn.), 120 pts., original with rudder only. There were 20 flyers on 27¼, two on 50 mc. (including Jacobs who used two R.F. channels), and three on 465 mc. A close fourth was Hank Struck, who entered a flying boat of about 5 ft. span, and using 27¼ rudder control. Hank said this meet was the first occasion he had had to try ROG, since the plane was always flown off the water at home; his radio equipment was in sealed compartment in the nose of the hull.

F.A.I. endurance trials were sponsored by the D.C./R.C. at Martinsburg, W. Va. Results were a disappointment to the members; best flight was made by Walt Good on about a 30 min. engine run. He was in the air 46 min. 25 sec., thus beating his 1952 American record by a considerable margin, but coming nowhere near the International record. Walt used his Rudderbug with two extra fuel tanks,



Gentle George's mini-rcvr. See Mac's column for complete details. The plastic case housing the receiver is only 2¼ x ¾ x 13/16 inches! The set is placed in a nest of foam rubber and held down with a rubber band. Plug shown was made from a defunct sub-miniature tube. Glass was broken off, leads from set soldered to wires that formerly went inside tube. Tape wrapping covers jagged edges of glass. A standard sub-miniature socket is employed with this plug. Mr. Trammell finds that the receiver will stand serious crackups without damage. On diagram 11 turns are for 50-54 mc.; 20 turns for 27 mc.

just as flown last year. Conditions were not too good for this type of flying, and several members had lost or damaged their planes trying to meet the entrance requirements; these were that the plane had to demonstrate ability to stay in the air at least 20 min., prior to the Trial day, and that it had to demonstrate ability to ROG successfully.

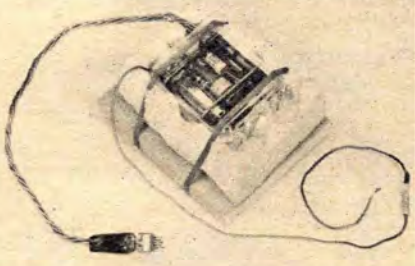
The above notes were sent to us by Herb Honecker (8105 Tahona Dr., Silver Spring, Md.), new Secretary of this very active group. Other new officers are: Pres,. Jim Reed; V.P., Bill Nesbitt; Treas., Al Montzka.

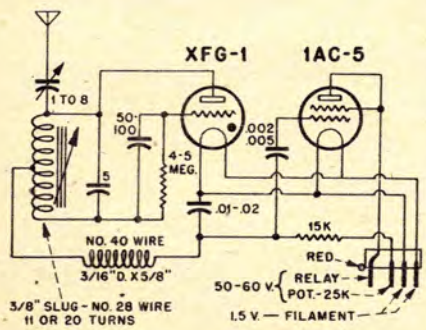
For the third successful year, the Pittsburgh Flying Circuit held their Northeastern Invitational R/C conference at Selinsgrove, Pa. Though these boys were cursed with poor weather, as they have been in previous years, all hands present considered the meeting a real success. The theme of this event is to gather a group of top R/C leaders of the area, to exchange ideas, hash over rules, discuss new techniques, and to fly just for fun. In spite of the rain, there was a lot of good flying, and some interesting new ships and equipment were put through their paces.

Since this was not intended to be a contest, there were no prizes or trophies. All the guests took home with them were the memories of a most enjoyable week end. An evening technical session was held, and there were movies and colored slides of R/C activities. The host club expressed the hope that guests would take home the idea of a non-competitive meeting, so that more such get-togethers would be held in other areas. Anyone who has attended such an event—and there were several held last year—will vouch for the fact that it is really a lot more fun than an out-and-out contest (even the die-hard competition flyers enjoy themselves!). Why not try such a meeting in *your* vicinity?

1953 Middle Atlantic Championships were held at Fentriss Naval Field. Three members of Hampton,· Va., R/C group scored top places as follows: 1—Helmut Kuehnel; 2—Jim Cubbage; 3—John Worth. All three used two-tube receivers and escapements. All flights were on the AMA Precision pattern, though both stunt and precision could be flown.

Ralph Costlow writes from Minneapolis (1709 Lagoon Ave.), that R/C is booming in his area (know (*Continued on page 62*)





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Perfectly shaped parts assemble to 10" overall length. Realistic? You bet! Shows live action, too, after you've installed ½A engine. PRICE, less engine & spinner, only $1.95

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TWIN-TUBE RECEIVER

With North American's famous printed circuit. Complete with mounting base, tubes, potentiometer, weighs less than 1½ oz. PRICE, less relay and batteries $24.95

TWIN-TUBE RECEIVER

In kit form. Fool proof assembly drawings. All the famous parts, less tubes, only $7.95

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THE NORTH AMERICAN DYNATROL TRANSMITTER

Look for the name "DYNATROL" for the newest compact, lightweight transmitter. Designed for maximum range with minimum power drain. A one tube transmitter with twin-tube performance. Go out to your Hobby Shop and hold this little giant in your hand. You won't want to let go!

Complete (less batteries) $29.95

1½ volt "A" supply
135 volt "B" supply
Measures 3¼x3⅞x5¾
Complete weighs only 2¾ lbs.

Sensitive Relay
Weighs less than ½ oz. $7.50

At your favorite Hobby Shop

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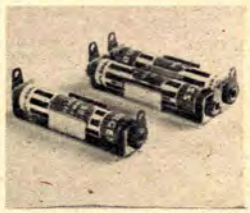
NEWPORT NEWS, VIRGINIA

ATTENTION! Radio Control Fliers

THE FIRST MAJOR CHANGE IN BATTERY CASES IN YEARS

ACME now makes a complete line of high quality battery cases. We have designed a battery case for just about every battery need. For Radio Control, Motor Boats, Cars, etc.



For 1 Cell 20c ea.
For 2 Cells 40c ea.
For 3 Cells 60c ea.
For 4 Cells 75c ea.
These prices are for either the new miniature pencell or regular penlite size battery cases. Battery cases are all completely insulated. There is no current in the metal of the battery case at anytime, which prevents accidental shorts.

Illustration shows a single and a double battery case for the new miniature pencells such as the Burgess #7.

NOTE: Insulation and solder lugs at both ends for each battery. These battery cases are made for 1-2-3 or 4 cells supplying from 1½ to 6 volts as needed. They may be wired in series or parallel giving you desired voltages.

But Look! Here Is More

Here is the big news—Battery Cases to hold 22½ volt batteries, such as the Burgess U-15. Radio control fliers have acclaimed these battery cases the greatest thing since R.C. started.

Made in 2 Sizes
For two 22½ volt batteries....50¢ ea.
For three 22½ volt batteries...85¢ ea.

In addition, we have made high quality battery cases for one or two medium or large standard flashlight batteries.

Single....25¢ Double....40¢

COMING NEXT MONTH—NEW ACME ANTI-STALL RADIO CONTROL TANKS
If your dealer does not stock Acme Products Order Direct
DEALERS—JOBBERS—ORDER NOW

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RADIO CONTROL FANS! DON'T MISS THE BOAT!

Sterling boat kits are especially engineered and designed for radio control!

Complete installation shown in detail on easy, step-by-step plans!

See these spectacular models in our ad on page 65

Sterling models
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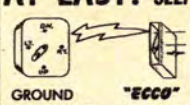
AT LAST! A MULTI - POSITION R/C **SELF-NEUTRALIZING ESCAPEMENT**



RUDDER CONTROL SHAFT
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GROUND CONTROLLER "ECCO" ESCAPEMENT
BOTH UNITS FOR $14.95 POSTPAID or at your DEALER

POWERFUL & DEPENDABLE

- Just turn the control knob to the maneuver you want the "Ecco" does the rest. — Up - down - left - right. —One escapement —One rubber motor —Uses ⅛ or ¼ flat rubber
- Rugged steel and aluminum construction, light weight.
- Built-in yokes
- No timing to catch No dirty contacts No signals to count
- "ECCO" uses a new cam principle which delivers more power for control movement with same rubber
- Engineered for your present R/C ship with any transmitter and receiver.

"GET AN ECCO" | ECCO MFG. CO. BOX 393 SMYRNA, GA. | ESCAPEMENT SPECS. WT. 2 OZ. 3-4½ V. Coil Size 1¼ x 2½ x 3½

YOUR MONEY BACK—IF YOU ARE NOT COMPLETELY SATISIFIED

Imported Swiss Flight Timer and Stop Watch Only $9.95

Thrilling new model. 3 separate recording dials. Sweep second hand with split-second stop. Radium face has telemeter (measures distance) and tachometer (measures speed) calibrations. Precision-made by watchmakers of Switzerland. Set in rugged shock resistant, anti magnetic chrome case with stainless steel back. Black or white dial available with genuine leather strap. Satisfaction guaranteed or money back. Be first to own this magnificent timepiece. Now only $9.95 ppd. each with full year guarantee direct from importer.

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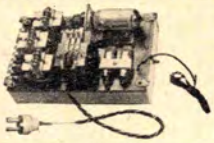

RADIO CONTROL UNIT, TUNED REED, 3 CHANNELS

Comprising transmitter, control box and receiver, incorporating reed unit giving output for three separate channels. The channels can operate either escapement and/or electric motors. HARD Valves with a life of over 3,000 hours are used throughout. Complete with antenna. Postage & Ins. 25c **$115.00**

REED UNIT —Supplied in three different frequency ranges which, when combined, will give up to nine channels. Diagram of suitable transmitter and receiver also supplied to enable construction of own equipment. Weight 1½ ozs.

$19.95 Postage & Ins. 50c

SIGMA 4F 8000 OHM RELAY

Now available, new, factory set and guaranteed. Postage & Ins. 25c **$7.00**

E.D. POLARIZED RELAY

Polarized by high flux double magnet system and incorporates fully balanced leaf armature. Unaffected by vibration and capable of operating on current changes of under 1 m/a. Weight ⅞ oz. Postage & Ins. 25c **$7.50**

FLY BALL ACTUATOR

No sequence to remember. Proportional action with pulse control. Continuous operation — no rubber to wind! Develops 6 oz. pull on 3 volts. Easy to install, for small or large aircraft. **$7.50** plus 25c pp.

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A "must" item. Can be used with any set. Shows if you're on correct 27.255 MC/S frequency. Also indicates "Top" output. Complete with instructions, ready for use. P.P. & Ins. 25c **$2.00**

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100% reliability due to robust and accurate construction of claw and rotor. Special double winding and current-saving device increases battery life, a feature first developed by E. D. Weighs only ¾ oz. Uses 3 pen cells. **$5.95** Postage & Ins. 25c

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World Patents Pending

COMING SOON! True proportional steering control. Operates rudder plus additional control on secondary circuit—both on single channel. Shock resisting, works with any existing receiver. Wt. 2½ ozs. Send S. A. E. for details!

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— Ideal for marine use, self powered with an enclosed spring wound motor. For 2 or 4 position operation. Weight: 3 ozs.

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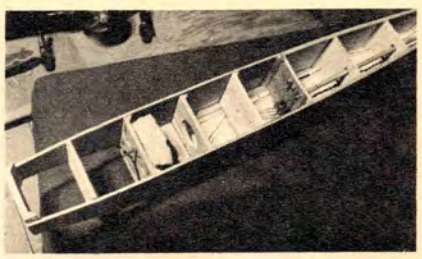
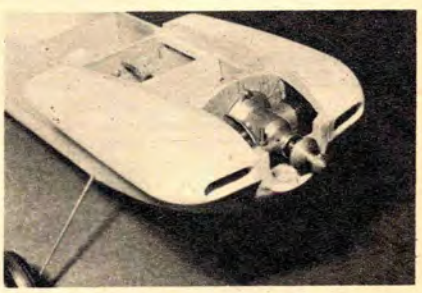
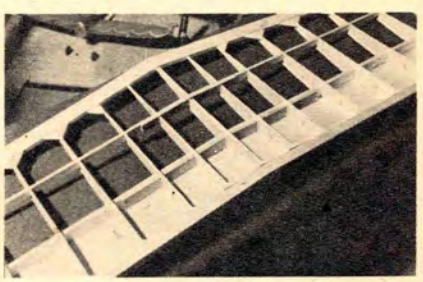
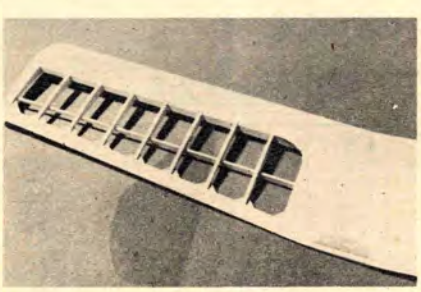
JERSEY LIGHTNIN'

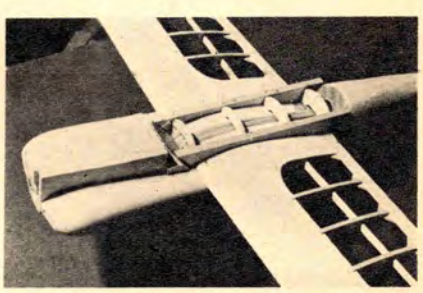
Construction Sequence Photos of Cal Smith's R/C Racer

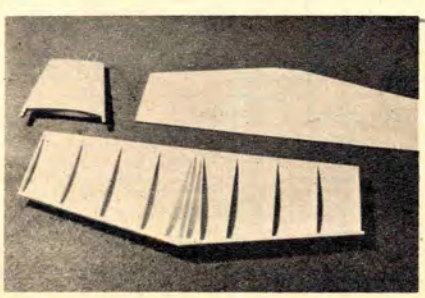


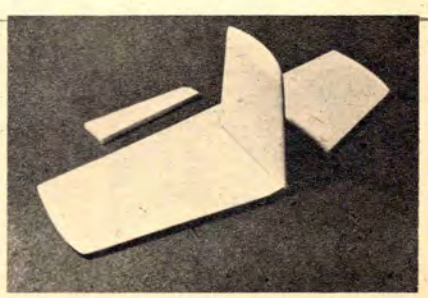












Jersey Lightnin'

(*Continued from page 42*)

complement uses medium cells because nose weight is needed. A powerful escapement such as the E.D. Mk. III with plenty of rubber for driving power and higher operating voltages is required because of the high air loads imposed.

If you do not want to tangle with the fast flying yet, we would recommend substituting a .14 or .15 size engine; this would tame her down a bit, but the nose would be lighter so ballast would have to be carried or the nose lengthened. If you build for the smaller engine the structure could stand lightening somewhat. Use thinner plywood bulkheads and cut lightening holes in plywood doublers and formers.

Construction follows conventional methods and the photos show the main features. Cut out plywood fuselage side doublers and join to balsa fuselage sides with Weldwood. Cut out firewall and all formers. The plywood floor between formers 3 and 4 can be used if you wish to try an aluminum sheet Cessna type landing gear. If wire gear is used, this floor can be omitted. The fuselage sides are parallel at formers 3, 4 and 5, so these formers are put in place first, then tail and nose formers added, working towards ends from the center.

Use Weldwood wherever hardwoods join, cement on balsa joints. Be sure to cut holes for wires, torque rod and escapement rubber in the formers before adding to fuselage structure. No drawings are shown for formers 7, 8, 9, 10 since they are rectangular in shape and can be made directly from plan top and side views. Add ⅛" sq. longerons and ⅛" sq. uprights at former side joints. Start putting the hardware into fuselage structure before enclosing top or bottom. Run antenna wire through formers from receiver compartment. Add escapement and torque rod. Fasten wing hold-down wires with L.G. plates and bolts. Landing gear can be bent to shape and fastened with eye or "J" bolts.

Work can now proceed on fuselage top and bottom. Add ¾" square strips along bottom edges and carve to side profile. Plank fuselage bottom with 1/16" sheet with grain running cross-ships. Turtledeck can be built up with solid blocks at wing trailing edge and stab leading edge cut at 45 deg. angle. Plywood facing is cemented over the blocks. Add formers and backbone. Planking is 3/32" thick strips or sheet formed wet and rolled to fit. Add lower nose block, rough-carve to outside shape and then hollow to about ¾" thick behind firewall.

Engine fairing blocks are cut to shape and hollowed out as shown. Add 3/16" sheet along fuselage top edge from spinner to

Jersey Lightnin' Construction Photos

(These supplementary captions refer to the pictures on P. 56, the sequence being from left to right.)

1 and 2. Cut out fuselage sides and doublers and glue together. Mark former positions on sides, then join starting with formers 3, 4 and 5. Add rudder drive before enclosing.

3. Add ¾" sq. to bottom and plank with 1/16" sheet. Carve lower cowl block and engine fairing blocks. Hollow, then glue in place. Build up turtledeck structure at tail.

4. Nose detail showing 3/16" sheet along inside top edge of engine fairing. Note cut-out portion for engine cylinder. Lower nose also filled to fair into spinner backplate.

5. Wing panels are built over plan. Pin down L.E., rear spar and T.E. Add ribs, front spar and gussets. Sheet cover leading edge before removing from work board. Omit rib #1.

6. Join wing panels with ⅛" plywood joiners at L.E., front and rear spars. Add double rib #1, gussets, then plank center section with 1/16" sheet both top and bottom out to rib #3.

7. Complete wing by adding cap strips and T.E. stiffener. Add tip blocks and carve L.E. and T.E. to final shape. Sand smooth and clear-dope before covering with silk or Nylon.

8. Fasten wing down on fuselage and cut top cowl blocks to fit engine fairing section and top of wing. Built up structure shown here, but block construction is easier.

9. "Fireball" construction of tail surfaces. Ribs are first cemented to wing skin and L.E. added. Then other wing skin is cemented down. Note method of pinning skin to ribs on fin.

10. Tails completed, tip block glued in place and carved to shape. Pin cemented to stab. Rudder is carved from block, fastened to fin with tubing and wire.

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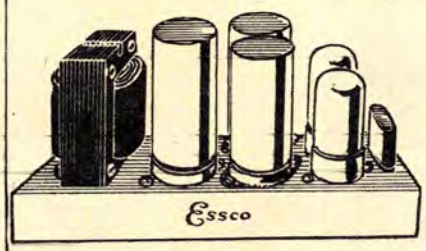

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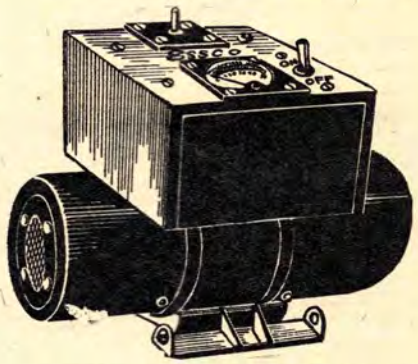

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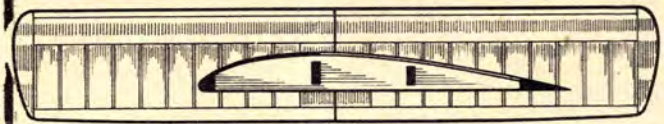

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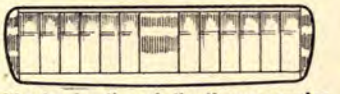

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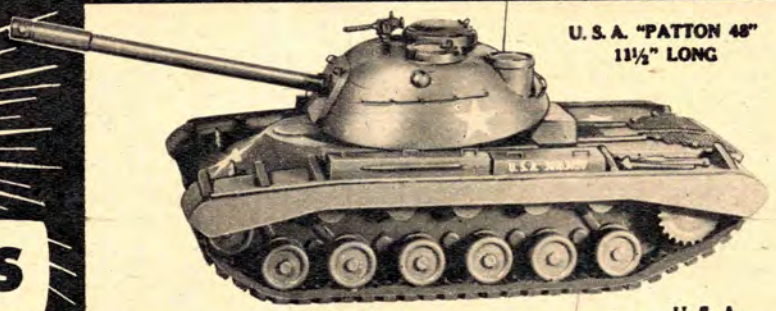

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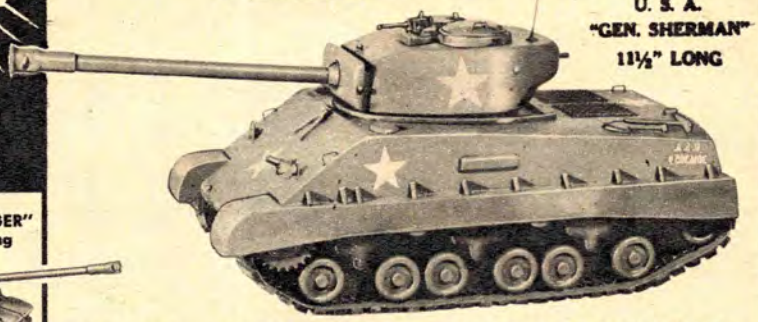

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former 3 to back up the top curve of the fairing block. Fuel-proof inside of fairing and enclose fuselage side surface before cementing fairing permanently in place. Fill in engine section sides ahead of firewall with ¼" sheet and ½" sq. in lower corners to build up nose to match spinner backplate. This area will then have to be hollowed to clear engine. The dummy carburetor scoop on the bottom cowl is added next. This block could be faced with an aluminum strip to prevent marring up the bottom on those hard landings.

The upper nose cowling and top over the wing can be built after the wing is in place so that a good fit will result. Lay aside the fuselage and proceed with the wing. Cut out wing ribs from ⅛" sheet and taper spars as shown. Build directly over plan, pinning leading and trailing edges and rear spar in place. Add ribs, then gusset as shown. Omit both No. 1 ribs until panels are joined. Add leading edge covering and cap strips before removing wing panels from work board. When dry take up from board and join panels with plywood spar joiners. Complete covering top and bottom of center section with 1/16" sheet.

Carve leading and trailing edges to shape, add tip blocks and carve. Inset ¼" x ½" pine strip at trailing edge. Retain thickness out to rib 3. This serves as stiffener for T.E. when wing rides against plywood former on turtledeck. The wing can be sanded smooth and given a coat of clear dope preparatory to covering.

With wing completed it can be mounted on fuselage and top cowling pieces completed. The top section over the wing was built up on the original model but plans show more easily carved block construction. Cut nose cowling to fit over firewall and between engine fairing blocks. Add plywood plate at 45 deg. slant at wing leading edge. Put down block over wing and rough-carve whole top section. When satisfied with fit over wing and nose remove pieces, complete carving and hollow to about ¼" thickness.

Top hold-down can be rubber bands over wing pins, and engine bolts behind firewall.

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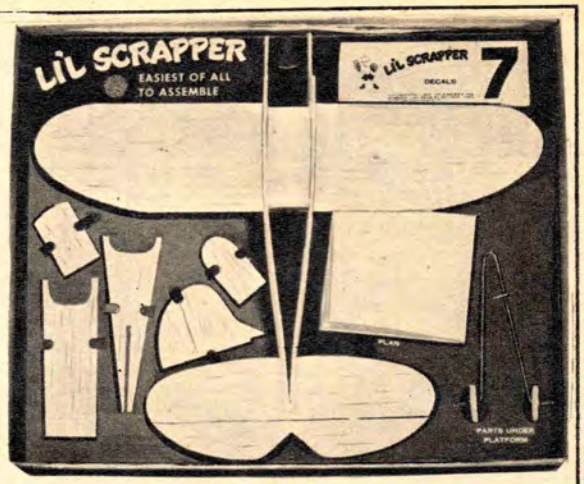

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Key top to turtledeck and nose cowling for proper alignment.

Tail surfaces are of "Fireball" wing construction and the same ribs are used for stab and fin. Cut out skin to outline and lay out rib positions in pencil. Cement ribs and ¼" sq. leading edge in place, then add other skin. Make a shallow razor cut along center line so that skin will make taper to tips O.K. Check alignment by sighting spanwise while adding second skin. Fin is made in the same manner as stab. Let leading edge and hinge post protrude for joining through stab skin. Cement fin in place on stab and add fairing block at leading edge to match turtle deck contour. Rudder is carved from ½" sheet and fastened to fin with wire and tube hinges. Key stab to fuselage.

All wood surfaces can now be given final sanding. Cover wood surfaces of fuselage and tails with lightweight Silkspan. The wing is covered with silk or Nylon. Clear dope covered surfaces with several coats before using colored dope. Naturally, fuel proof dopes should be used throughout. Original model was finished in red and cream, but suit yourself on the paint job.

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Pants can be added after test flying is completed, but keeping them on in flight and still having them "knock-offable" in hard landings is a problem. We are not very satisfied with the system used, so if you can come up with better one, more power to you. The pants are a sandwich of two layers of ⅛" plywood with a balsa core. The wheel is spaced on the axle with soldered washers and the inside plywood surface of the pant is notched so that pant slides down over the wheel. A dummy strut of 1/32" aluminum is bolted to the inside of the pant and bent to lie flat along the wire strut up to fuselage side. Where sheet aluminum touches fuselage the end is bent over and this tab is notched to go over gear wire. A small wood screw through the tab holds the aluminum to the fuselage bottom. A better system might be a combination Cessna type aluminum plate gear bolted to fuselage bottom with wire axle through lower ends. Pants could be bolted to aluminum plate.

To complete the model a few items remain. The K&B .19 is fitted for radial mounting by adding a ⅛" thick aluminum plate over the rear crankcase cover. Cut four bolts ⅛" longer than regular rear cover, retaining bolts to mount the radial plate. These can be countersunk in the radial plate if desired.

Because of large right thrust offset it was necessary to add a hardwood mounting pad between the firewall and the engine. This can be cut from ½" thick pine and beveled to the angle shown in the top view. Drill to match radial mount-holes. The angle shown is 8 deg., but since each model will fly differently thrust offset may have to be changed. It is a simple matter to shave the face of the wood mount pad to make this adjustment. Jim Walker regulator and pressure tank are used and regulator is mounted under crankshaft with fuel line passing through firewall to pressure tank.

Battery complement is packed in sponge rubber immediately behind firewall. Receiver is mounted flat against a 1" thick sponge rubber pad behind former 3. Four hooks are placed in outer corners of former 3, and rubber bands criss-crossed diagonally over receiver and rubber hold rig.

A Sigma relay is mounted on a Lord mount bolted to a removable ⅛" plywood plate behind former 4. DPST switch pot and meter plug-in are mounted in left fuselage side between former 4 and 5.

With ship completed and all gear installed, check for C.G. location as indicated on the plans. Try to retain wing tail and incidence as shown and shift batteries to get proper C.G. location. Make a series of hand-launched glides to check this. Check also for any glide turn tendencies; straight flight is wanted, so remove any warps that may cause turn. First power flights should be throttled down and of short duration. Rudder travel should be limited to about ⅛" in each direction. This can be opened up to about ¼" later.

Bill of Materials

6 1/16"x3"x36", wing covering, fuselage bottom. 2 1/16"x6"x36", tail skins. 1 3/32"x3"x36", turtledeck covering. 10 ⅛"x3"x36", ribs, formers, sides. 3 1/16"x1¼"x36", rib caps. 4 ⅛" sq.x36", longerons and uprights. 1 ¼" sq.x36", tail leading edge. 2 ⅛"x½"x36", rear spars. 2 ¼"x¾"x36", front spars. 2 ¼"x1"x36", wing trailing edges. 2 ½"x⅝"x36", wing leading edges. 1 ½" sq.x20", tail tip. 1 ¾" sq.x36", fuselage bottom. 1 1" sq.x18", wing tip.

Blocks: 1 ⅛"x3"x18", pants core. 2½"x2½"x20", engine fairings. 2"x4"x36", fuselage top and bottom cowl.

Hardwood: ¼" dia., 18" cedar arrow. torque rod. 4"x44" of 1/16" plywood, sides and formers. 12"x12" of ⅛" plywood, formers, joiners, pants. 4"x12" of ¼" plywood. firewall, formers.

Wire: ⅛" dia.x24" wire, landing gear, wing hooks. 3/64" dia.x18" wire, rudder drive, linkeage.

Miscellaneous: 2¼" dia. Froom Spinner, 3" dia. Veco wheels, 10" bubble canopy, three eye or "J" bolts, two landing gear mount plates, 1" Lord mount, 1 doz. 4-40 bolts and nuts, R/C receiver, relay, escapement, batteries, switch, pot., meter plug as required, four sheets lightweight Silkspan 1 1/3 yards silk or Nylon, four 4 oz. clear dope, four 4 oz. red dope, cement, Weldwood glue.

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Fox .19	12 " " 3 " "	11 " " 4 " "
K&B .29	12 " " 3 " "	12 " " 4 " "
Fox .29	12 " " 3 " "	12 " " 4 " "
McCoy .29	12 " " 3 " "	12 " " 4 " "

R. C. Propellers

10 in. dia. 2-3-4 in. pitch—35c ea.
11 and 12 in. dia. 3-4-5-6 in. pitch—45c ea.

Plasticote Propellers

5" and 6 in. dia.—15c ea. **7 in. dia.—20c ea.**
8 and 9 in. dia.—25c ea. **10 in. dia.—30c ea.**

For the STUNT FLYER

The new 10" dia. Plasticote Propellers are now available at 30c ea. in 5 and 6 in. pitch. On all the .29's use a 10-5, on the .32 and .35 a 10-6. Forster 29 and 31, McCoy 29, do very well on the 10-5. The efficiency of the Plasticote propellers run up to 95%, and it may be advantageous to try a 10-5 instead of a 10-6.

RADIO CONTROL NOTES

When flying R. C. it is necessary to reduce venturi opening from 25 to 50% on almost all engines. Large props slow your engine R.P.M., reducing suction. The model does not fly level at all times . . . dives and stalls are encountered changing the fuel force. Plug the venturi opening to such an extent that you get the power you want from your engine. Too much speed in R.C. can be disastrous.

GRISH BROS.
St. John 1, Indiana

R/C News

(*Continued from page* 55)

anywhere that it *isn't*?!). Two-tube receivers predominate, and most everyone except Dick Brundige is on 27¼; Dick has his 2-tuber on 50mc.—he is W0ECJ. Several of the flyers have midget planes powered with Thermal-Hopper engines, which range from 170 sq. in. and 19 oz., up to Ralph's "big" job with 240 sq. in. and 26 oz. Their club, the Minnesota Hot Watts, is very active and other R/C clubs are springing up all around. They had a queer problem recently, that seems to have been experienced in other areas, from what we have heard: during an evening flying session, planes were spinning in one after another. Some checking showed that a fellow was operating an R/C boat in a lake a half mile away! Get a-building on those Direction Finders, boys! See Below.

Technical Topics. Having personally spent many hours at meets this past season checking interference with the little direction finder described in the August issue, we heartily recommend them for this purpose, and suggest that every R/C club should have one. Not only will they ferret out the offending party, but they are very useful for locating lost planes, and for testing receivers in the shop and field. If carefully made, they will show within close limits whether you are on frequency, too. If you follow our plans, be sure to use the tubes specified on the diagram—a CK5676 oscillator and CK533 amplifier. It has gotten to the point where every club should include among its officials an "Interference Monitor," and it is certain there should be one at *every* R/C meet.

Very handy gadget for operating low power 120V. A.C. appliances from car battery is a little inverter that can put out about 15 W. power. Useful in the field for working soldering iron (small ones only, of course), grid dip meter, portable A.C. radio, etc. The 15 W. size measures about 6"

NOW YOU CAN OWN AMERICA'S MOST FAMOUS HELICOPTERS

Official Scale Models Win the Acclaim of Experts Everywhere for Authentic Detail

THE HILLER HORNET
with official insignia in Army olive drab, Navy blue, and Civilian red.

THE PIASECKI
with official insignia in Army olive drab, Navy blue, Marine blue, Air Rescue Service gray, and Piasecki Workhorse silver.

THE SIKORSKY
with official insignia in Army olive drab. Navy blue, Marine blue, Air Rescue Service gray, and Coast Guard yellow.

$2.49 EACH
Sikorsky Air Rescue with Pontoons, $2.98

HELICOPTER GUIDE by "Les" Morris

The only book of its kind! Written by one of America's first and foremost helicopter pilots. Tells you everything you want to know about helicopters. Gives detailed, easy-to-understand instructions and diagrams on how to fly a helicopter. Jam-packed with illustrations and facts. $2.00 per copy. Add 10c for postage and handling.

You've been reading about these exciting helicopters for a long time—now you can own exact replicas, detail for detail. So real looking, you think they're about to take off. These models are precision molded of sturdy polystyrene plastic, and are handsomely gift-packaged with a dramatic color illustration, suitable for framing, on the box cover. Each easy-to-assemble kit contains a clear plastic display stand, instruction sheet, and a folder describing the fascinating history of the helicopter. These authentic models are a prize for any collection—get yours today! AVAILABLE AT YOUR DEALER and Fine Stores Everywhere, or write direct to us. Enclose check or M.O. plus 25c for postage and handling—no C.O.D.'s please. Specify model and color desired.

Helicopters for Industry Inc., 111 Cathedral Avenue, Hempstead, N. Y.

x3½" sq. and sells for around $9, is called "Trav-Electric." You plug it in the cigar lighter; unit also useful for working electric shaver, and can be had in higher power sizes.

Useful soldering flux that is not too corrosive may be made by mixing 20% glycerine, 20% zinc chloride, 60% ethyl alcohol. We have used this on music wire—it should be sanded clean, of course—with fine results. It is ideal for making gas tanks, R/C actuators, etc. Not recommended for use on electrical or radio connections, due to possible corrosion or conduction effects, this is a general purpose flux midway in potency between rosin and the really "hot" acid fluxes. Clean off excess flux with alcohol.

Commercial Offerings. Since 2 V. power supplies have become so popular Electronic Specialty Supply Co. (58 Walker St., New York 13, N. Y.) has designed one that will give 160 V. output at 30-40 ma., when run from 2 V. storage cell. Unit is very compact, and there is space on chassis for 2-tube transmitter as well. Kit costs $9.95 with plain chassis and $11.95 with drilled chassis. This concern has kit for FSM described in Sept. '53 issue of A.T. for $12.95; kit includes finished meter shunts, eliminating one of the most finicky jobs in building this unit.

New 465 mc. receiver has been announced by Citizen-Ship Radio Corp. (909 Westfield Blvd., Indianapolis 20, Ind.). Called Model AR, it is somewhat lighter than the well-known Model CR, and is much smaller in size. It can be mounted in a fuselage only 2½" wide. Two simple tuning adjustments allow it to be checked and peaked up on the field. The set requires no antenna—nor does it have the loop antenna that is fitted to the Model CR. Price is $22.95. Model CR is still available at $29.95. This concern will repair any receiver for $2.50, plus cost of parts needed; all receivers that are repaired are also "souped up" for more sensitivity. Souping-up job will be done on any Macnabb 465 receiver, even if it is presently in workable shape,

PACKAGED PERFECTION!

A Model Flyer's Dream Ship

Thimble-Drome TD-1

The Hobby Gift of 1953... To Give or To Get

TD-1—COMPLETELY ASSEMBLED, READY TO FLY featuring ALL-METAL wing, body of high impact plastic, and SPACE BUG .049 engine. Package includes Skylon control reel, batt. wires, clip, filler hose, etc., etc. De Luxe full color gift box that is almost worth the price of admission by itself! **$19.95**

TD-1—TWO-MINUTE ASSEMBLY KIT for those who like to "build their own", including SPACE BUG .049 engine, less accessories. Beautiful 25 inch gift box **$15.95**

At All Hobby Counters

L. M. COX MFG. CO., INC.

Thimble Drome Planes, Engines, Fuel, Race Cars

Box 476 SANTA ANA, CALIFORNIA

for minimum charge just quoted. This cost holds true only if all parts are in good shape, of course.

New concern catering to the needs of R/C builders, Gyro Electronics (325 Canal St., New York 13, N. Y.) can supply kits for any R/C equipment described in A.T. They also handle general electronics parts and supplies. Offer new VB-8 vibrators for Mac-II transmitter, or your own 2 V. design, for $1.00. New Sigma 4F relays (unused, but leads cut to 1" length) 8,000 ohms, $4.50.

Precision Control Labs. (2467 Stratford Rd., Cleveland Heights 8, Ohio) offers a kit for their SC-3M transmitter for $16.95. Includes everything but the batteries—3A4 tube, meter, case, antenna, key lead, punched panel, etc. They also sell the case and panel, fully punched, and with panel lettered, for $3.95. Many new items have been added to line; get your name on the mailing list.

In addition to R/C equipment for model planes, Dover Electronics Corp. (201 E. Blackwell St., Dover, N. J.) has developed an electronic model locomotive control. "Loco-Control" enables user to start and stop up to six engines at will, and sells with one receiver for $24.95. An additional unit enables control of four additional receivers, costs $7.95. Extra receivers to go in the trains cost $7.95 each. Receiver is small enough to fit HO trains, can be used for blowing engine whistle, uncoupling cars, etc. This concern also makes three sizes of adjustable motor mounts for model plane engines; they allow thrust adjustment in any direction, can be used for beam or radial motor mounting. Half A and A sizes —$0.98, B-C size—$1.10.

Users of engines in the new "F.A.I." class will be glad to learn that K&B Mfg. Co. (234 E. Palmer, Compton, Calif.) will be able to supply their hot new .15 engine with twin needle valves, as they do with the .19. Price not settled as this was written; probably about $3.00 more than standard .15. Two-speed engine weighs 3.42 oz., has slightly restricted intake for ease of starting, and for smooth low speed operation.

Have you read Frank Zaic's new Model Aeronautics Yearbook for 1953? In addition to large amount of info on models in general, new book has 13 pages of R/C dope, including drawings of 7 R/C planes. Available for $1.00 from Model Aeronautics Publications (Box 333, Sta. D., New York 3, N. Y.).

Polk's Model Craft Hobbies (314 5th Ave., NYC 1) now exclusive distributors for Flyball Actuator, device that makes high power proportional control possible; unit is ideal for boat and car use as well as for model planes. Weighs 3.2 oz. Price is $7.50, operates on 3 V. Polk's also distributes Schuco ball-bearing motor for $5.95, and a low cost, but very efficient motor selling for $1.50; both of these are PM types, and operate well on 3 V.

Users of 22½ V. batteries similar to Eveready 412 can now obtain a 45 V. battery of similar-sized cells. It measures about 3¾ x 1 1/32 x 5/8", weighs 2½ oz., and has snap-type fasteners. It is Eveready #415 and may be had from distributors of this line.

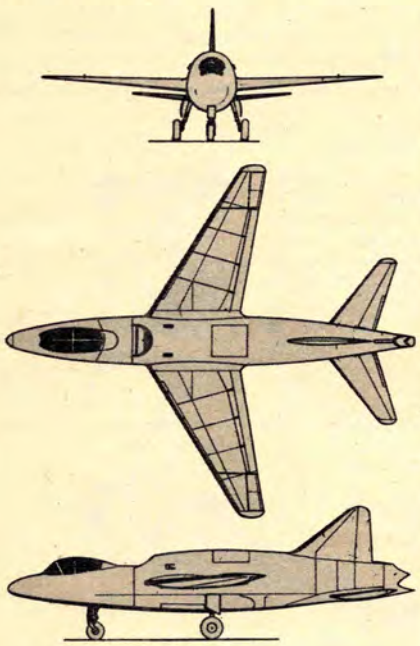
The Mac II transmitter has proven so popular that our original source of the PE-157 unit has been sold out for some time—though we made sure that many hundreds of these surplus power supplies were available, before the article was published. Requests continue to come in for these outfits, and we are constantly on the lookout for more of them. As this was written, the following concerns had some in stock:

Gyro Electronics Co. (325 Canal St., New York 13, N. Y.), Control Research (P.O. Box 9, Hampton, Va.), G. L. Electronics (905 S. Vermont Ave., Los Angeles 6, Calif.). Price is around $15.00 each, much higher than we paid for the original units, but still well worth it—just ask any Mac II user! Electronic Speciality Supply Co. (58 Walker St., New York 13, N. Y.) sells a completely finished Mac II outfit with 2 V. cell, antenna, meter switching, tubes, etc., for $45.00.

FLASH! Gyro reports new shipment of PE-157's to sell for $11.95 less speaker, 2 relays and cable, but with all necessary parts for Mac II.

FAT FRENCH FIGHTER

This strange hump-backed airplane is the second version of France's 2-place twin-jet S.E.-2415-02 Grognard fighter-bomber. Two Hispano Nenes of 5000 lbs. thrust each are mounted one above the other, receiving air from a common intake located behind the cockpit, exhausting gases through two tail pipes in rear. Plane carries rockets and bombs internally, achieving clean lines with full military load. Two 30-mm cannon are mounted one on each side of fuselage. Span is 51 ft. Top speed 595 mph. Weight 31,900 lbs.



From SANTA... and STERLING!

HARCO '40' DELUXE CABIN CRUISER

KIT B-10M
Length 27½"
Beam 8½"

$10.95

Power Boating • Radio Control • Shelf Model

Mahogany used extensively. All parts die-cut and notched. Plastic windows. Yachting ensign. Venetian blind material. Complete power fittings. Full-size step-by-step drawings and instructions.

Deluxe 64-pc. Scale Marine Fittings, Set B-10F $4.50

HIGGINS 26' EXPRESS CRUISER

KIT B-9 Length 15"
Beam 5¼"

$3.95

Mahogany used extensively for cabin sides, windshields, bulkheads, instrument panels. Scale marine fittings from bow light to exhaust. Complete power drive unit. Authentic decals. Step-by-step instructions.

SEE THESE OTHER STERLING MODELS

Planes	Kit	Price
Monocoupe	C-1	$4.95
Howard Pete	C-2	5.95
Mr. Mulligan	C-3	4.95
Waco	C-4	5.95
Polish Fighter	C-5	5.95
SE 5	C-6	5.95
Ryan S-T	C-7	5.95
Fokker D-VII	C-8	5.95
Ring Master	S-1	2.95
F-51 Mustang	S-2	2.95
Yak-9	S-3	2.95
Space Master Junior	S-4	2.25

Power Boats	Kit	Price
Richardson 27' Cruiser	B-1	$5.95
Higgins 17' Speedster	B-2	4.95
Chris-Craft 47' Buccaneer	B-3	7.95
Century 20' Resorter	B-4	3.25
Century 20' Sea Maid	B-5	2.95
Chris-Craft 32' Cruiser	B-6M	9.95
Chris-Craft 50' Catalina	B-7M	11.95
Century Sea Maid'20'	B-8M	7.95

Scale Marine Fitting Sets

Set B-6F 3.50
Deluxe 34 pc. set for Kit B-6M
Set B-7F 4.95
Deluxe 66 pc. set for Kit B-7M
Set B-8F 3.95
Deluxe 35 pc. set for Kit B-8M

Sterling models
1530-34 N. Hancock St.
Philadelphia 22, Pa.

Here at last! MATCHED MARINE FITTINGS

A really matched set of power fittings to make up the finest marine drive unit ever offered! Sensational new nylon power propeller. Every part engineered for maximum performance! Gas Marine drives include brass flywheel.

½A GAS MARINE DRIVE $2.95 A or BC GAS MARINE DRIVE $3.95
ELECTRIC MARINE DRIVE $2.25

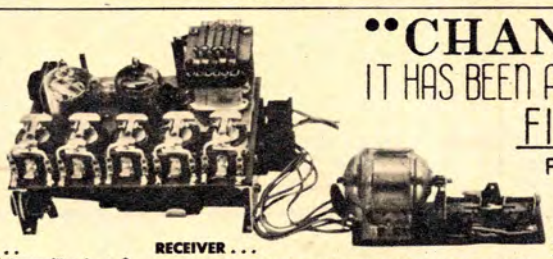
INDIVIDUAL FITTINGS

½A Universal	$ .85	A or BC Universal	$1.25	Nylon propeller
½A Flywheel	.85	A or BC Flywheel	1.25	1⅜" dia. x 1⅜"
½A Shaft & Stuf. Box	.25	A or BC Shaft & Stuf. Box	.35	pitch . . . $ .75

••CHANNEL MASTER••

IT HAS BEEN A LONG WAIT, BUT IT IS HERE!

FIVE SEPARATE USABLE CHANNELS!
POWERFUL MOTOR DRIVEN SERVOS!
STICK OPERATED CONTROLS!



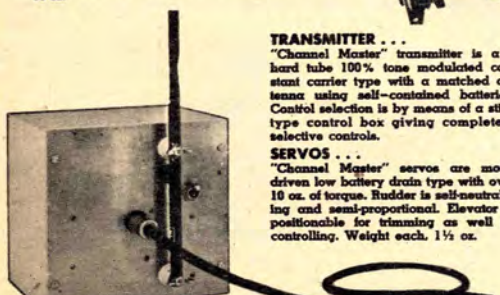
The "Channel Master" is a completely proven, flight tested system with hundreds of unbiased development flights by such R/C flyers as deBolt, McElwee and Swank. One test model was a small .08 powered "Live Wire Trainer"! Complete flying weight of system, only 30 oz.

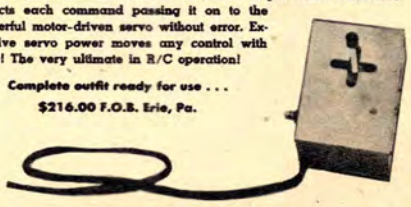
YES, it is here! Now, you can have rudder, elevator and engine controls, completely selective to your every desire! No longer is the model your master, with "Channel Master" YOU FLY IT just as you would a full scale airplane. Stick type control gives positive selection, no sequences or "missed beeps"! Powerful transmitter reaches out into the furthest distances with confidence! A super sensitive receiver detects each command passing it on to the powerful motor-driven servo without error. Excessive servo power moves any control with ease! The very ultimate in R/C operation!

TRANSMITTER . . .
"Channel Master" transmitter is a 3 hard tube 100% tone modulated constant carrier type with a matched antenna using self-contained batteries. Control selection is by means of a stick type control box giving completely selective controls.

SERVOS . . .
"Channel Master" servos are motor driven low battery drain type with over 10 oz. of torque. Rudder is self-neutralizing and semi-proportional. Elevator is positionable for trimming as well as controlling. Weight each, 1½ oz.

RECEIVER . . .
"Channel Master" receiver is a 3 hard tube audio tone-resonant reed selection type. An extremely sensitive receiver with broad simple tuning. NOT affected by interference. Sensitive relays respond only to the desired command, system "fails safe." May be used with servos or escapements.
Dimensions: 2¾" x 3½" x 2½" high, weight 8¾ oz.

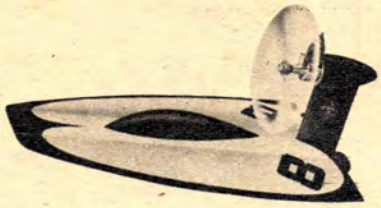




Complete outfit ready for use . . .
$216.00 F.O.B. Erie, Pa.

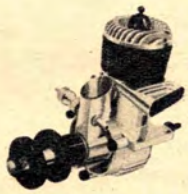
Schmidt Radio Controls
"CHANNEL MASTER" CONTROL SYSTEMS FOR MODELS WITH AUDIOTONE SELECTION
RESONANT REED SELECTORS • MOTOR DRIVEN SERVOS
MULTI-CHANNEL RECEIVERS • TRANSMITTERS • CONTROL BOXES • RELAYS
350 EAST 33RD ST. ERIE, PA.

AIR TRAILS CHRISTMAS GIFT SECTION



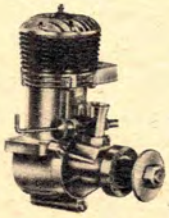
☐ **AQUA-SKIMMER** by Jasco is star performer on lake, pond, pool. Uses Half-A engine. Simple assembly. $1.95.

☐ **X-ACTO NO. 73 AERO-FIELD KIT** contains 37 useful tools in large durable, fitted canvas roll. $17.50.



☐ **O&R "23"** is small brother in Cheminol line which includes "29", "33" and "60". The .23 motor is $11.95.

☐ **TEXAN AT-6** semi-scale North American trainer prefab by Scientific takes small engines; for control line. Spans 18 in. $1.95.

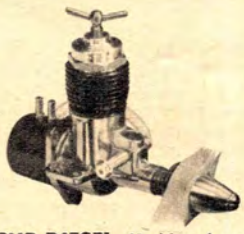


☐ **FORSTER F-29** glow plug engine. Six oz. .29 cu. in. suited for powering any Class B plane. Front rotary valve. $11.20.

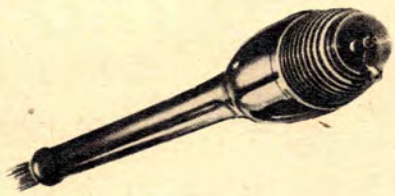
☐ **DOUGLAS DC-6** Pan American World Airways Clipper transport solid scale by Strombeck-Becker Mfg. Co. $1.79.

☐ **GYRO ELECTRONICS** 27.255 mc. exam-free transmitter, X-3. 1-tuber for dry battery operation with almost 5 watt input. Uses 1.5 V. "A" and 67.5 V. "B". $23.95.

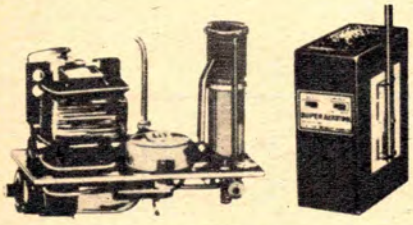
☐ **SUPER ZENITH** stunt model for Cub .15 and K&B .15 engines. Prefabbed by Enterprise, $3.50. Shaped, 2-pc. fuselage.



☐ **OK CUB DIESEL,** Herkimer's new .075 cu. in. displacement 2 oz. diesel, $7.50. Needs only Cub diesel fuel, no batteries



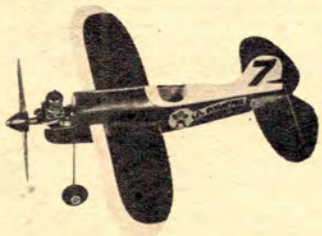
☐ **DYNA-JET RED HEAD** real jet engine by Curtis. Equivalent of 2 hp. Length 21.5 in., dia. 2.5 in. Did 179 mph. $35.



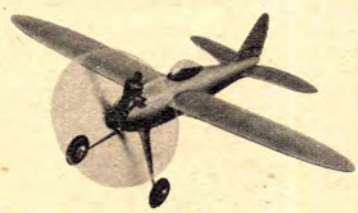
☐ **SUPER AEROTROL** exam-free 27 mc. crystal controlled receiver, transmitter, antenna, escapement & milliameter. $49.95.

☐ **SPEEDSTER BOAT** kit by K&O Models complete with powerful inboard electric motor. Hull, deck finish-carved. $11.95.

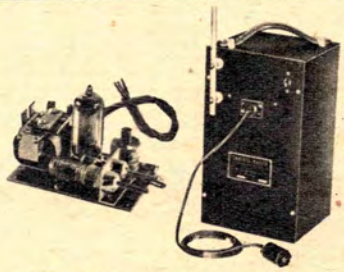
☐ **STUKA DIVER BOMBER** with "redi-carved" and hollowed fuselage. Half-inch to foot scale. By Consolidated. $3.50.



☐ **LI'L SCRAPPER,** Airport Models control line sport flyer made and sold by P.D.Q. has die-cut parts; partially assembled. $1.50.



☐ **A-J FIREBALL,** most famous U-C model of all time comes in kit complete with wheels, wire, control handle, includes flying course!

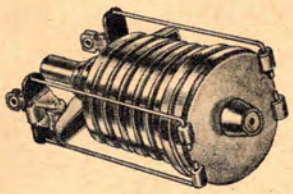


☐ **CONTROL MASTER R/C** unity by Enterprise include Model 27X transmitter for 27 mc. $29.50. 27RH receiver. $19.95.

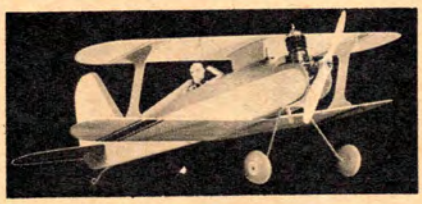
☐ **LIVE WIRE SENIOR** by deBolt Model Engineering, 65 in. span de luxe radio control kit for .19 engines. $14.95.

☐ **HOT SHOT POWER PAC** comes with charger; $6.95 from Great Lakes Battery Co. Engineered for model plane starting.

☐ **CAVACRAFT AIR BOAT** is copy of craft used by Florida game wardens. Glow plug or electric motor; prefabbed. $1.

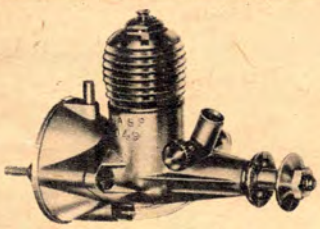


☐ **JETEX SCORPION 600** is most powerful of series. Six oz. thrust. With fuel, augmenter tube, accessories. $8.95.



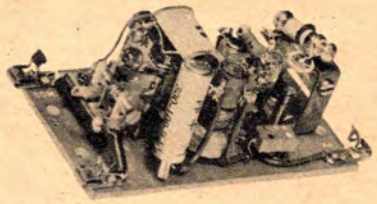
☐ **SUPER STUNT RUNT,** Simplikit #5 by Joy Products has 20 in. span, takes .09 motors. All parts pre-shaped. $2.25.

☐ **JAGUAR** English open sports car kit by Ace features simplified parts, most ready shaped. Scale plans. $1.25.



☐ **HOLLAND WASP** is famous .049 cu. in. disp. motor; power-ported Model "H" —$5.95 for free flight; $5.70, U/C.

☐ **SHERMAN TANK** by Mercury Model is $2.95 in kit form. Prefabbed balsa parts; formed wheels, die-cast guns.



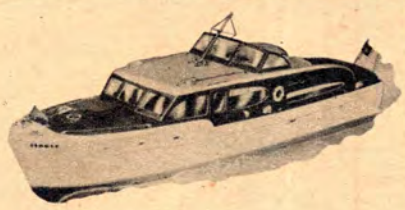
☐ **CITIZEN-SHIP "AR"** 465 mc. receiver designed specially for small Half-A radio control planes. $22.95.

☐ **KENHI BUZZER'D** is six-foot de luxe R/C model featuring "kwik-loc" construction. For .14 to .35 motors. $10.95.

☐ **U. S. FIGHTING PLANES** pictorial album issued by Arco Pub. Co., $1. By Lt. Cmdr. Dale W. Cox, Jr., USN. With data.

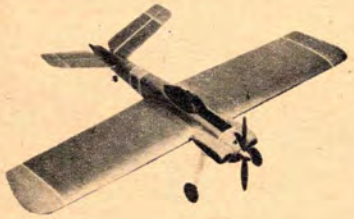
☐ **CONVAIR XF-92A** delta wing interceptor molded in plastic by Allyn, $2.49. With base and ball & socket swivel.

☐ **MOODY SC-5** screwdriver kit has 5 interchangeable blades. Strong precision driver for tiny screws. $1.75.



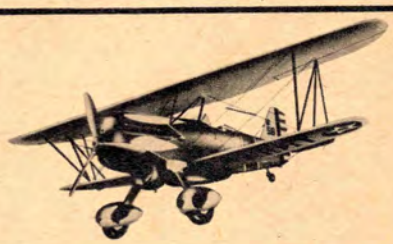
☐ **STERLING CHRIS-CRAFT CATALINA 50'** flying bridge cruiser; suitable for radio control. Less fittings, $11.95.

☐ **COX TD-1** ready-to-fly plane has engine, control lines, all accessories. Span, 18 in.; wt., 10 oz. $19.95.



☐ **F & B STINGER** V-tail stunter has 48-in. wing; takes B-C engines. Die-cut parts; wheels; plastic canopy. $6.50.

☐ **BABCOCK** 27 mc. BCT-2 transmitter—BCR-3 receiver. Modulated carrier; 3 hard tubes in rcvr. $39.95 & $29.95.

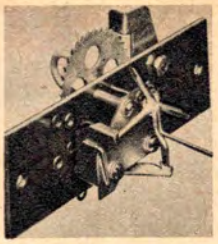


☐ **BERKELEY CURTISS HAWK P-6E** is firm's 20th anniversary U-control special. For .09 to .15 engines; 23¾" span. $4.95

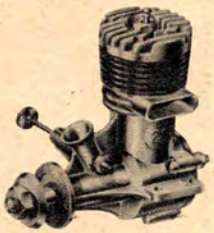
CHRISTMAS GIFT SECTION

As its annual contribution to model builders "AT" presents this Christmas Gift Section comprised of items that the model fan would most like to receive . . . our suggestion would be that you browse through this collection of model items and check off those you'd appreciate finding under the tree come Dec. 25 . . . then perhaps you can "arrange" for your choices to be brought to the attention of Santa Claus . . . tell Santa, too, not to forget the necessary accessories: dope, glue, batteries, props, brushes and fuel!

☐ **NORTH AMERICAN DYNATROL** transmitter. The one-tube affair measures 3¼ x 3⅞ x 5¾ in., weighs 2¾ lbs. $29.95.



☐ **BONNER COMPOUND ESCAPEMENT,** self-neutralizing, 4-position, speed regulated control unit. 8/10 oz. $14.95.

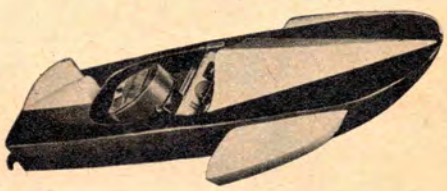


☐ **VECO "29" ENGINE.** Displacement .299 cu. in. Rpm range with 10/6 prop: 3,000 to 11,500. 6.2 oz. $14.95.

☐ **CURTISS P-40F** by Miniature Aircraft has 4-ft. wingspan. Aluminum spinner. For free flight or U-Control. $9.

☐ **DYNA-MODEL PRODUCTS** Fw-190 Focke Wulf scale model kit, $2.75. Packed with metal castings. One of 15 available.

☐ **HOBBY HELPERS** offer this new "Building and Flying Scale Model Aircraft" by Musciano. $2.95. Plus many others.

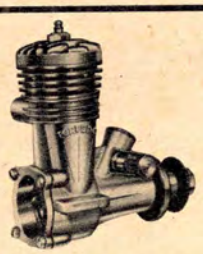


☐ **BARRACUDA** by Master Modelcraft, prefabbed 3-point suspension boat, $2.50. Electric or gas. Hardware included.

☐ **IDEAL MODELS'** background scenery for tin-plate or HO railroad, $2. Lithographed in 4 colors. Pop-outs produce 3-D effect.

☐ **CLEVELAND MODEL PRODUCTS'** radio-control Luscombe Sedan is one of those b-i-g jobs, 76" span. R/C data. $7.50.

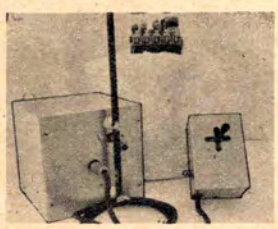
☐ **ACE** Dry Battery Charger enables you to use set of B batteries all season. Will charge hearing aid B's and pen cells, too. $8.



☐ **K&B "15"** world's championship engine powered F.A.I. winner. Weighs 3½ oz. Bore, .580; stroke, .520; .15 cu. in. $10.95.

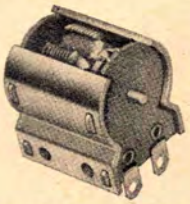
☐ **ANTIQUE GUN MODELS** (from top): Jackson, $4.95; Lafayette, $5.95; Washington, $5.95. Carved stock, plastic parts.

☐ **SOUTHWESTERN MODELS'** Dil-Bod Half-A team racer is jaunty little 14 in. control line model for .049 or .51. $2.50.



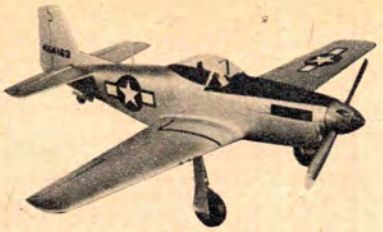
☐ **SCHMIDT'S CHANNEL MASTER** 5-channel audio tone, resonant reed selection system with control box. Complete, $216.

☐ **TOP FLITE MODELS'** Jigtime Jets are fine for the young enthusiast and make excellent stocking stuffers. 25c ea.

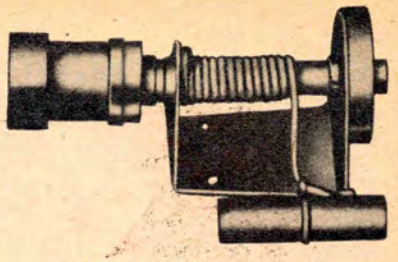


☐ **ARISTOCRAFT MINIATURES'** "Wonder" miniature electric motor: 1.5 oz., 1x1x ⅞", 1.5 to 4.5 volts. Alnico V magnet. $1.50.

☐ **CONSTRUCTO NAUTICAL MINIATURES** offer 7 historic firearms in replica kit form. This is 9 mm Luger. $2.95.

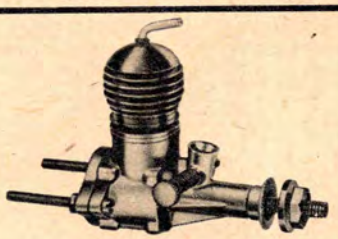


☐ **MONARCH MODEL AIRCRAFT** suggests for Half-A powering this "spittin' image" 20" P-51H. Prefabbed. $3.95.



☐ **SULLIVAN PRODUCTS** improved starter with Nylon clutch provides just the right power to start your engine. $2.50.

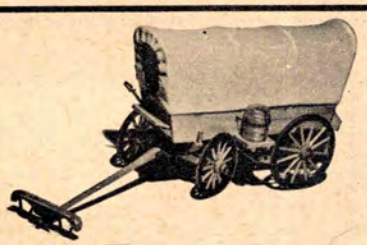
☐ **SIKORSKY** rescue helicopter by Helicopters for Industry is plastic replica with pontoons easy-to-assemble; insignia. $2.98.



☐ **McCOY DIESEL** requires no batteries or glow plug. Displacement is .049 cu. inch. Designed for use with Half-A models. $5.95.

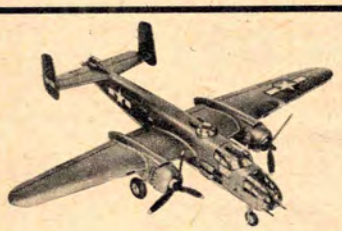
☐ **DUMAS PRODUCTS** have 12 power boat kits ranging from 21 to 33½ inch lengths, $2.95 to $9.75. Also data book.

☐ **SCHOONER SULTANA** by Model Shipways; includes carved hardwood hull, castings, cordage, wood parts, plans—$8.50.

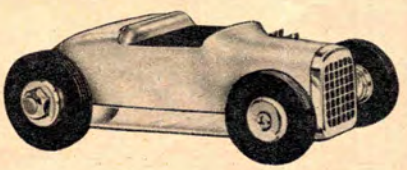


☐ **COVERED WAGON** of pine and balsa with molded plastic wheels; early Western model kit made by Frontier. $1.50.

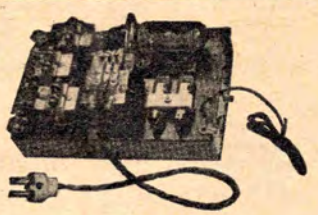
☐ **DOUGLAS SKYKNIGHT F3D-1** by Comet Model Hobbycraft has shaped wing, finished plastic parts. Prefabbed. $1.00.



☐ **MITCHELL B-25** bomber scale kit by Monogram includes 34 plastic scale parts, 57 finished balsa parts. $2.95.



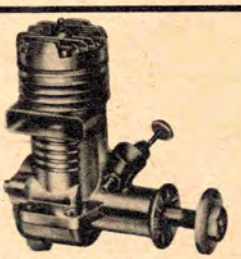
☐ **CAMERON RODZY** engine powered model race car driven by .09 heavy duty motor. Comes ready-to-run. $16.95.



☐ **POLK'S MODEL CRAFT HOBBIES** offer multiple control via E. D. Aristrol 3-channel. Rcvr, xmtr, control box, $115.

☐ **TESTORS BUTYRATE DOPE** that's hot fuel proof makes thoughtful gift. Make 12 quarter-pint cans of different colors, $6.

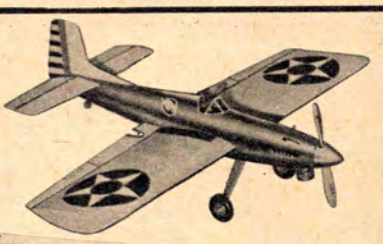
☐ **GUILLOW'S TRIXTER BEAM** radio control model took '53 Internationals. Spans 50 in. .09 to .14. With hardware. $6.95



☐ **FOX "35"** engine has scored numerous wins in Nationals and Internationals. Used extensively in stunt contest jobs. $14.95.

☐ **MODEL AERONAUTIC YEAR BOOK** for 1953 is finest work by noted author Frank Zaic. "Must" for all. $1.

☐ **ESSCO "VMA"** economical meter test set by Electronic Specialty Supply—4 ranges: 0-5 & 0-50 ma.; 0-5 & 0-50 volts. $8.95.



☐ **VECO SQUAW** stunt model is redesigned. Looks like striped-tail Army Air Corps fighter of '30's. 38½". $5.75.

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NEW HOBBY!

ALL PARTS CUT TO FIT
CONSTRUCTO KITS

Authentic replicas of famous historic pistols. Cut-to-shape parts and fittings. Includes step by step instructions for making a handsome firearm.

EASY TO ASSEMBLE

ANTIQUE GUN MODELS
JUST LIKE THE REAL THING!

Handsome and ornamental, each pistol a reminder of Colonial days when men were men and gun duels were common. Genuine details of real pistols that have the look of a museum piece. Kiln-dried wood parts of selected stock; includes all fittings plus simple instructions. Metal parts in plastic.

KENTUCKY RIFLE KIT: $14.95
This is the type rifle used in "log cabin" days for backwoods hunting. Makes a handsome piece for over the fireplace in living room or den.

POLK'S MODEL CRAFT HOBBIES, Inc.
314 5th Ave. (32nd), Dept. A14, NYC 1

Southern

(*Continued from page 35*)

look for a good contest in Columbus next spring. By that time such fellows as Randy Hale, Bill Fox, Bill Keleher, Tommy Barber, Don Crisp, Judy Crockett, Jim Faulkner, Joe Bertin, Travis Wilson, Tom Reed, Jerry Pilcher, Warren Bussey, Dave Anderson, George Godfrey, and the "father-son" combination—Captain De Lautours and young Dennis—should be able to grab off their share of trophies. Flyers in traveling distance of Columbus are invited to drive over on Sunday afternoons and fly with them. King Airport on Victory Drive is the flying location. Contact Larry Cooper, phone Columbus 2-7701, or write him care of the White Company.

From faraway San Antonio, Texas, comes word from Donald W. Wolfe whom we met at the Greater Southeasterns. Don writes, "My flying has come to a sudden halt . . . Uncle Sam has taken over my life for four years. When I get out of 'basic' I expect to start on a new R/C job. In the meantime my younger brother, age 8, will have to carry on for the family."

Glad to hear from you, Don, and many readers will be interested in knowing where and how you are. That little brother of yours is making a fine start! Remember, he took 4th in junior rubber, his first time out, at the Southeasterns, then went on to win first in junior A free flight in Daytona, and second in open rubber. He's hoping to make the Tangerines, if they hold one. Don's address is: A/B Donald W .Wolfe, AF-14505, Sqd. 3702, Lackland AFB, San Antonio, Tex. Write him! Nothing cheers a guy in the service like getting letters from his friends.

Herbert Davis from Birmingham writes that his dad is about to organize a PAL club, and that R/C is growing by leaps and bounds. Herbert and Alfred did not go to Detroit this year. Very few did from this area! Herbert goes all out for George Perryman for the next 5th District Vice-President. He says, "Everybody likes George and we'll do our darndest to elect him." Most everybody in the District feels that way, Herbert, even a few in Florida!

Tommy Davis of Atlanta and his Dad flew up (unsponsored), to the Internationals. It was worth his trip up there, for he grabbed Senior D title with 151 plus mph, his best performance of the season.

Bob Surrency of Memphis, one of the place winners in towline unlimited at the Nats, is thrilled about the forming of their new model club in Memphis, Tenn. Says most flyers are interested in free flight. Not a bit surprised, Mr. Bob—Tennessee has long been noted for its fine free flighters! By the way, where is John Dooley now? Somewhere in the Air Force, but *where?*

Under their new Club President, Joe (Jet) Tison, the Albany Aero Club holds contests on Sunday afternoons at an abandoned bomber landing strip near Leesburg. Many Air Force modelers fly, then get in big planes to hunt down the errant free flights. In Albany there's plenty of hunting to do, with those South Georgia thermals. Dom Kimsey writes, "They are perfect the year around except in the very worst of weather." Don also congratulates all of you Southerners who did so well in the Nats.

A few more details on the Greenville, S. C., meet. We had an excellent assistant to jot down news for this column, a pretty young CAP cadet, Barbara Allison. Our thanks to her and others who have helped. Down Greenville way, novice stunt enrolled most entries, meaning that more and more the older flyers are taking interest in the beginners. Carl Myers of Greenville, now a senior at Georgia Tech, is the new secretary of the Georgia Congress Model Airplane Clubs.

Ed Breland of Laurel, Miss., is the livest wire in the state. Ed keeps us informed of growing interest in the "Ole Man River" country. Matt Carter II will soon be ready with a Senior Livewire ship. This makes nine R/C jobs now in that area. Charlie Brown, of Tuskeegee Institute faculty in Alabama, was a visitor in Laurel recently. Tried out his Javelin with Air Trails xmitter and two-tube receiver with Bonner

THE ONLY MODELS BUILT THE SAME AS LARGE FULL SIZE BOATS

12 beautiful power boat construction kits—21" to 33½" length. $2.95 to $9.75. Write for free literature on boats, motors, fittings. At all hobby stores. Chris-Craft, Owens, Harbor, Vinyard, Colonial. Large boat construction from factory plans. U. S. A. and Armed Services only.

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24" B-52 "STRATOFORTRESS"

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CURTISS P40F GAS MODEL

New Improved Model

48" Span. Free flight or U Control

Improved with new 2¾" alum. spinner and 3" Veco alum. disk semi-pneumatic rubber wheels. Planked type body, parts printed on balsa and all parts. Set $9.00

9' TAYLOR CRAFT GAS MODEL

9 foot span. Can use Radio control. Set has 30 ready cut wing ribs, cut plywood body formers, 16" carved prop. tail wheel unit, 2 full size plans, printed balsa, silkspan, etc. Uses "C" type motor, single, twin, or 4 cyl. motor. Set without motor or wheels, postpaid $17.50

Extra pair of 4½" airwheels, $3.00

NORTH AMERICAN B25 GAS MODEL

33½" Span. ½" Scale

Set has two alum. cowls and scale Veco rubber tired wheels. Model can use ½ A motors. Wasp, etc. Set less motor $7.00

Add 25c for postage.

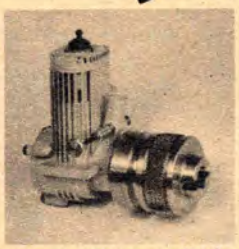
CATALOG of many other models—10c coin

MINIATURE AIRCRAFT CORP.

83 Low Terrace, Staten Island 1, N. Y.

CAMERON

.09" SPECIAL MARINE ENGINE NEW



Single jet model complete with grooved flywheel and starting cord.

only $9.95

Double jet model complete with grooved flywheel and starting cord.

only $11.95

This new heavy duty engine is built especially for powering model boats. It is available in a single jet model and also in a two jet model for use in radio controlled boats where two speed engine operation is desired.

It comes complete with starting cord and slotted flywheel for universal drive.

This engine was developed especially for use with a flywheel and desired needle valve settings are easily obtained due to special governor porting which prevents its running away with itself when no load is being applied. It has been thoroughly tested and proven under every conceivable operating condition in numerous types and sizes of model boats and has given excellent performance even under adverse circumstances.

It is extremely rugged and well built for long, trouble-free service.

It is easy starting and develops great power.

ACCESSORIES

Universal coupler for use in coupling ⅛" propeller shaft with flywheel of engine..... $1.00

Drive shaft for use with above coupler (⅛" dia.)..... .75

Manufactured by

CAMERON PRECISION ENGINEERING CO.

Chino, California

Compound escapement. Brown is one who has done well without much help. Let's hear from you, Charlie, more news about you and your friends who fly.

Breland has dug up two R/C men in Meridian, Miss.—George Williams and Jim Bates. Williams lost a Rudderbug some weeks ago and is now putting his attention on an original design. Contest was held Labor Day in Meridian. Things are picking up! Give Breland time and he'll have Mississippi alive with contests!

Last-minute report from William J. Lumley, secretary and treasurer of the Miami Modelers, about their fine contest. Next month we'll give you his full report and names of winners.

Earl Lines of Atlanta, a skilled accountant, has been official master scorer and tabulator for the Greater Southeasterns for many years. Here's an example of the kind of statistical information we have:

Total Planes Participating 1953 Meet. *Free Flight*—305; Open, 162; Senior, 51; Junior, 92. *Control Line*—228: Open, 110; Senior, 41; Junior, 77. Percentagewise—57% Free Flight, 43% Control Line.

Popularity of Events (Percentage of entries): ½A Free Flight, 15.2%; H. L. Glider, 9.4%; A Free Flight, 9.4%; A Speed, 7.5%; TL Glider, 7.1%; B Speed, 6.8%; B-C Free Flight, 6.2%; D Speed, 5.4%; Rubber, 4.7%; ½A Speed, 4.5%; Combat, 4.3%; Radio Control, 3.0%; C Speed, 2.6%; Jet Speed, 2.3%; Flying Scale, 2.3%; Radio Race, 2.0%.

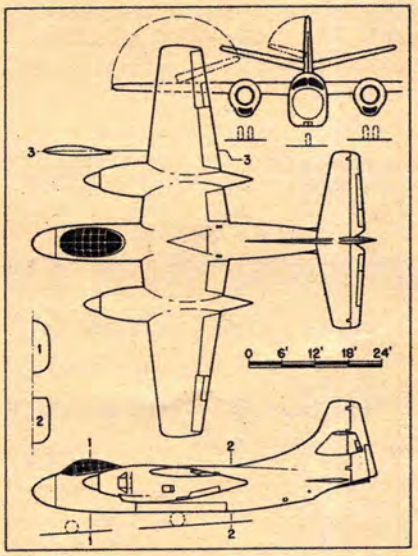
Radio control race was the first year of this event. Many flyers not prepared. Notable increases 1953 over 1952 in Greater Southeastern contest: Rubber, Open and Junior; A Free Flight, Junior; Stunt, Junior. Notable decreases: TL Glider, Junior; ½A Free Flight, Senior; B Speed, Open; Combat, Senior.

This is but an example! Most helpful in determining next year's events and seeing the general trends.

Tampa, Fla., held another contest, sponsored by Hi-Torque Club and Legion Post #139, a little late to make this deadline. News about this meet next month.

—*R. H. Elliott, Box 5078, Atlanta 2, Ga.*

AJ-1 SAVAGE



First Naval airplane to be designed especially to carry the atom bomb from carrier, the North American Savage is a large, heavy airplane powered by two 2400 hp Pratt & Whitney piston engines and one Allison J-33, 4600-lb.-thrust jet in tail of fuselage. Plane has a gross weight of 55,000 lbs., is capable of a speed of over 400 mph. Can also be used for refueling of fighters. Range with tip tanks around 3000 miles. Another version, XA2J-1, powered by turboprops.

IF YOU'RE INTERESTED IN OLD AIRPLANES— THIS IS IT!!!

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U. S. ARMY AIRCRAFT, 1908-1946
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An illustrated history of the military airplane listing more than 2,000 models and modifications of Signal Corps, Air Service (A.E.F.), Air Corps and Air Force aircraft of heavier-than-air types. Who built them. When. How many. Weights and dimensions. Engine data. The 1949 supplement describes the "interim" postwar Air Force; includes the New and Old aircraft designations as revised in 1948. The 480 illustrations in the booklet and supplement include many rare views from government and private collections.

Price: One Dollar and a Quarter ($1.25) Postpaid. Sorry — no C.O.D.

And—Fahey's famous "Blue Books"

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The world's largest Navy. Our Active and Reserve Fleets. Ship types, classes, names, numbers, tons, guns, data. Current types of Navy and Marine Corps aircraft are covered in detail. Ship index. Booklet and Addenda contain 158 views of ships, 106 of aircraft.

Price: Two Dollars ($2.00) Postpaid

Five old editions of "Ships and Aircraft" can be obtained from the Publisher: First, 1939, 50¢; 1941, 75¢ (*used copies and culls remain*); 1942, $1; 1944, $1 (supply very low); 1945 Victory $1.

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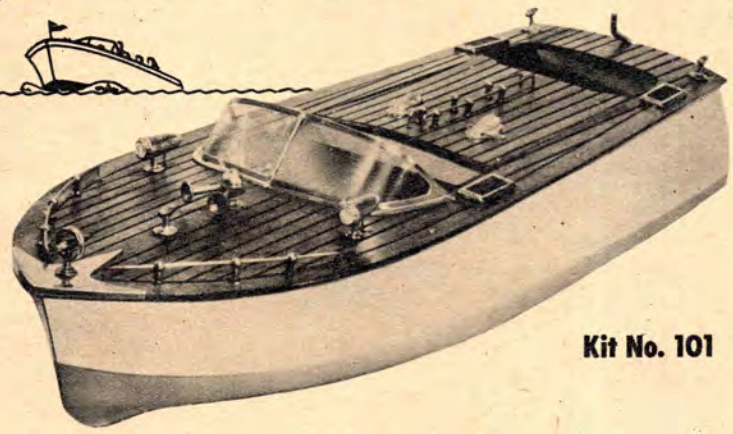

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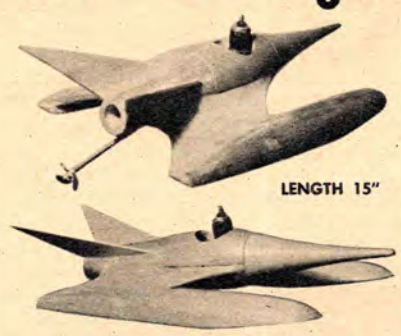
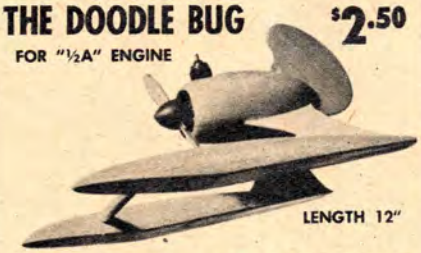


LENGTH 15"

THE DOODLE BUG $2.50

FOR "½A" ENGINE



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ADD 15c TO COVER HANDLING

Sailplanes

(*Continued from page* 18)

at least 250 glider flights, or 25 hours of flight time which include a minimum of 125 flights, and pass a written and flight test. This rating permits him to carry passengers in gliders for pay or reward, and instruct students.

The sailplane and glider come under the same category as powered aircraft as far as licensing is concerned. They are certificated by the CAA carrying numbers prefixed by the letter "N" (code letter for U.S.A.) on wings and rudder. Registration and airworthiness certificates are issued with the numbers and must be posted in full view in the cockpit. There is actually only one full-fledged glider manufacturing concern in this country, the Schweizer Aircraft Corp., County Airport, Elmira, N.Y. They manufacture the all-metal, high-performance single-seater of the 1-23 series which did so well in the recent National Soaring Contest, taking first, second and fourth places. Schweizer has also available some single-place and two-place training gliders built by them several years ago.

The construction kit situation is not a happy one. Kits are not generally available, though arrangements can be made with Schweizer to purchase one of their gliders in kit forms. Construction plans for several sailplanes are available for those who have time and skill to build in accordance with methods prescribed by the CAA. Information regarding plans can be obtained by writing to the Soaring Society of America, Box 71, Elmira, N. Y.

Rocket Racer

(*Continued from page* 33)

shown on the drawings. Formers A,B,C,D,-H,I,J,K, are ⅛" sheet balsa stock. Formers E and F, are shaped from ¼" sheet balsa. Firewall, former G, is ⅛" plywood. Group the motor mount formers F,G,H, by inserting the ⅜" sq. hardwood motor bearers. A broomstick of moderate proportions is marked off with proper former spacings. The formers are then slipped on. The mounting holes of the formers should be made small enough to permit a snug fit. Doing this will avoid shifting as the formers are being planked. Planking is done with the use of balsa stripping ⅛" x ¼". Planking strips are tapered to fit forward of station "D" and aft of station "H." Careful joining should be maintained during entire fuselage construction. With the split fuselage, maximum strength must be maintained through all phases of construction. Before planking is completed the nose wheel is installed. Gear wire is 1/16" dia. and braced to former B; use a reinforcing sheet of ¼" hard balsa.

With the fuselage completely planked and sanded as near round as possible, the broomstick is slipped from the completed fuselage and returned to mama. A nose block of ½" sheet balsa is then added. When dried, another block with a ⅛" hole added is cemented and sanded to fair in with the balance of the fuselage. The tail end of the fuselage is finished off by cementing a 1/16" sheet tube inside of former "K" to form the tailpipe of the jet engine.

Little else can be done to the fuselage until the wing is completed and assembled. At this point, we think it wise to mention that 90% of the landing load is absorbed by the wing tip gears which in turn are fastened to the wing tip proper. Through all the wing, careful joining and fitting must be exercised to end up with a rugged wing.

The wing is solid, using laminated sections of ⅜" sheet balsa building up to the required ¾" thickness. Between each panel is cemented a sheet of 1/16" plywood. Total thickness of each panel is ¾" and when finished, takes the shape of a symmetrical cross section. Two sheets of ⅜" x 3" sheet balsa are butt-cemented to form the lower half of each panel. The plywood is then cemented in place followed with the layup of the upper half. Sheets, ⅜" x 2" butt-

cemented, are used to form the upper half of each panel. You will note the plywood is recessed into the wing and not just placed between the panels.

Shape the wing as shown to a streamline cross section. When completed, incorporate the necessary angles at the root of each panel to form the required sweepback and reverse dihedral. At this point in construction, rough-saw-cut the slit in the wing. Since plywood forms a part of the wing surface, attempting to cut the slot when completely assembled would present a problem.

Prop up the panels and butt-cement them together using several layers of cement. On the fuselage, mark off the necessary lines, cut out and fit the wing panel in place. Once again, a good joint is extremely important. During the layup of the wing, try to keep the motor bearers parallel to a line drawn through the wing tips, or if you wish, normal to flight path with a zero degrees setting. Allow considerable time for the above assembly to dry completely.

The tail assembly is a comparatively simple affair with the stabilizer mounted high on top of the vertical fin. Laminated sheets of ¼" and ⅛" sheet balsa are used for the rudder. The ¼" sheet layup is made in two pieces, permitting a relief for the pushrod movement which takes place in the fin. Shape the fin to a shallow symmetrical section and groove the vertical rear portion to accommodate the rudder.

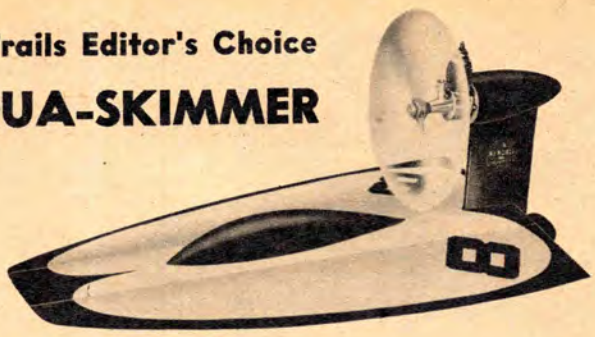
Medium hard ¼" sheet is used to form the stabilizer and elevator halves. The elevator halves are cemented to a ⅛" x ¼" hard balsa hinge spar. When the tail surfaces are shaped, fasten the horn to the elevator spar; also secure the cloth hinges. Cement the stabilizer assembly to the vertical fin. Apply several coats of cement. Set aside this assembly and allow to dry thoroughly.

The assembled wing and fuselage should by now be well dried. Complete the prop slot by sandpapering smooth and to proper size for prop clearance. On top the fuselage cut out the two holes shown. One is for the engine cylinder, the other for tank and bellcrank mounting. A 2" bellcrank is wood screwed to the single motor bearer as indicated. On the opposite side is mounted a Maeco .5 oz. fuel tank. Two ¼" holes are drilled in the side of the fuselage to permit the installation of lead-outs. A 1/16" dia. steel rod is bent as shown, and installed as the pushrod. All wires leading to and from the bellcrank are soldered to avoid any possibility of loosening in flight.

In the tail end of the fuselage cut out a slot of sufficient proportions and install the tail assembly and pushrod. Setting of the

Air Trails Editor's Choice

AQUA-SKIMMER



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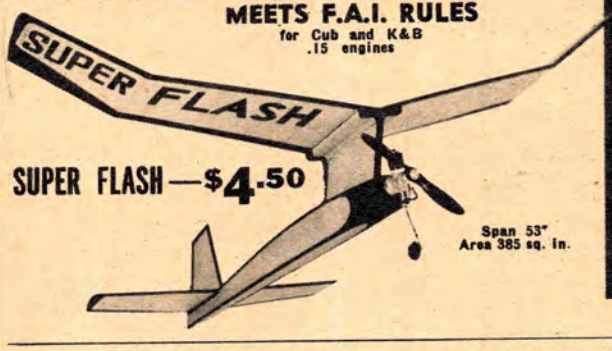

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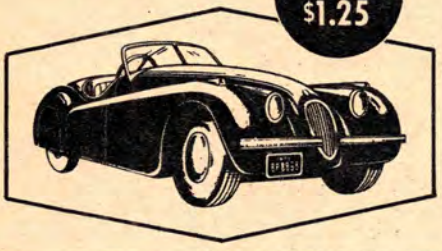

tail is zero degree incidence. Be liberal with cement during this operation.

Installation of the main gear is next considered. Using 1/16" dia. wire, bend the gear as shown in the three views, one for the left tip, the other for the right. Hold them to the wing in correct position and, using a pencil, score the outline of the triangle. This score line is then gouged out, permitting the gear to sit flush with the wing bottom. Heavy-cement in place, and use ¼" hard balsa reinforcement with teardrop shaped pads. Apply several coats of cement.

The Rocket is now completed less its finish. Using balsa wood filler, check over the entire job, filling where necessary. When dried, sand all surfaces smooth. With this operation done, the balsa scoops shaped from scrap balsa are cemented in place. Apply several coats of clear dope with a light sanding after each application. When thoroughly dried, brush on several coats of sanding sealer. In doing the latter, brush against the grain at all times. Allow the model to dry thoroughly (about two days).

In general, the average guided missile is decked out in an array of colorful combos, so we followed suit. We chose a bright rich, Fokker red for all surfaces. Trim is a bright lemon yellow. Checkerboard trim is used on a small portion of the fuselage. Standard star and bar decals are next added. When all trim is completed, brush on two coats of fuel proofer, covering all surfaces. At this point, install both the engine and rudder. The 7" prop is fastened to the engine before installation. Use wood screws to secure the engine to the motor bearers. Solder the 1/16" dia. wire line guide to the left hand gear, and solder the 1" wheels in place.

For flight testing, it's advisable to remove the needle nose and cowl until full flight familiarization is acquired. We flew our Rocket on 40 ft. lines with very favorable results. It may be necessary to weigh the nose to bring balance in proper position. The model should fly with nose heavy tendencies, else proper landings will be difficult without damage.

Flipping the prop presents no problem, with free movement for more than 180 degrees of rotation. Starting will be simple. Maximum power should be used only when proper results are obtained during the cruising speed of the engine.

Bill of Materials

(Balsa unless otherwise noted)

2 pcs. ⅜" x 3" x 36" med., wing bottom, rudder. 2 pcs. ⅜" x 2" x 36" med., wing top. 1 pc. ¼" x 3" x 36" med., stabilizer, elevator, fuselage formers, fin. 2 pcs. ⅛" x 3" x 36" med., vertical fin, fuselage formers. 1 pc. 1/16" x 6" x 18" plywood, wing reinforcement. 1 pc. ⅛" x 3" x 3" plywood, engine firewall. 18 pcs. ⅛" x ¼" x 36" med., fuselage planking, elevator hinge spar. 1 pc. ¼" x 2" x 10" very hard, reinforcing pad for main gear on tips, gear support for nose. 2 pcs. ⅜" sq. x 6" hard wood, motor bearers. 1 pc. 1" x 1½" x 1½" soft, fuselage nose.

Misc.: cement; clear and colored dopes; fuel proofer; nuts and bolts; 1/16" dia. wire; 1/32" wire; 3 1" dia. Veco wheels; 2" bellcrank; solder; Cub .14 engine; 7" prop; star decals; Trim-Film; elevator horn; sandpaper; rubber bands; thread; pins; Maeco .5 oz. tank; plastic tubing.

CONTEST CALENDAR

List meets here! Advise Air Trails not less than 90 days in advance. If any area restrictions on entries, be sure to state. Address of contact man in same city as site of meet unless otherwise specified. (Give telephone No. of contact man when possible.) When info on events is furnished these are abbreviated as follows: indoor rubber powered—IR; outdoor rubber powered—OR; outdoor hand launched glider OHLG; indoor glider—IG; towline gliders—TL; free flight gas—FF; control line speed SP; control line scale—CLSC; control line stunt—ST; team racing—TR; combat—COM; radio control—RC; rise-off water free flight—ROW; carrier models—CAR; free flight scale—FFSC; non-flying exhibition scale—NFSC; jet speed—J; controline endurance—CLEND; Wakefield—WAK; PAA-Load—PAA.

CALIF.—Los Alamitos, Nov. 15. Long Beach Thunderbugs F.A.I. gas meet. F. L. Swaney, 527 E. 55th St., Long Beach.

CALIF.—Los Alamitos, Jan. 17. Long Beach Thunderbugs F.A.I. gas meet. F. L. Swaney, 527 E. 55th St., Long Beach.

ARIZ.—Tucson, Jan. 31. Thermaleers 3rd annual Roundup. C. R. Downs, 1035 E. 6th.

(See also contest mentions in Dope Can, R/C, Southern Scene, and Western Roundup columns.)

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Dope Can

(*Continued from page* 10)

Guillow Award Winner. Ronald Schelmetic of Fairfield, Conn., the 1953 winner of the Paul K. Guillow Memorial Award for "outstanding achievement in the modeling field" is a member of the Fairfield Air Barons which he helped organize. We're delighted to see the award go to an active model club man. Ronny was selected for his untiring and unselfish efforts in helping promote modeling throughout his two years as secretary-treasurer of the Connecticut Chapters of the A.M.A. and in the many contests at which he officiated.

The award will go each year to some U.S. modeler under 21.

Model Display. Airplane models telling the story of flight going back 100 years before the Wright Brothers are on display in the lobby of the Commerce Building in Washington. The model collection, which was donated to the CAA's Aviation Education Staff by the late Paul K. Guillow, is on view every day of the week. This presents an opportunity for visiting modelers and students to see the famous collection.

Production of the models was almost a lifetime hobby for Mr. Guillow. He had the models made to scale, and the model builders who worked with him have been extremely faithful to detail. Many aeronautical engineers have studied the models, and they were favorites with model builders while on display in an upstairs room of the Commerce Building.

The collection includes models of the famous flying machines made by Cayley, Lilienthal, and Stringfellow and the amazing Penaud plane which in 1876 had such "modern" features as castering and retracting landing gear, thick wing, adjustable propeller blades, automatic pilot and balanced control surfaces.

Congrats. "Kaye and Ken Willard happily announce the arrival of Donald Bruce—9 lbs., ½ oz."

Full Dress Required? Got our first engraved invitation to attend a model meet—honest! First we thought it was a wedding announcement, but it read: "Please consider this your personal Invitation to Attend the 5th Annual Upper Midwest PAA-Load Meet and Radio Control Event all day Hinck's Airport Monticello, Minnesota." Sorry, lads, we couldn't make it, our tux was in hock. Anyway, a clever idea—by Walt Billett?

Meet Russ Nichols. Again we turn to Connecticut for a nice excerpt on the AMA's headquarters director: "Anyone who has been a member of the Academy of Model Aeronautics for any length of time certainly knows of Russ. Nichols. Russ has been with AMA since the spring of 1942.

"During the time RN has been associated with Academy headquarters the following are a few of the major activities which have been initiated:

- Navy cooperation for the Nationals.
- Permanent sponsorship for the Nationals.
- PAA sponsorship of payload events.
- Plymouth Motor Corporation modeling program.
- Air Force modeling program.
- Extended voting privileges for both election of Academy officers and on changes to rules and the circulation of ballots to all members.
- Liability protection for members.
- FCC approval of the 27.255 mc examination-free R/C band (the result of Walt Good's unrelenting efforts).

"Although Russell is the type who passes credit along to others, he is almost completely responsible for the inception and continuance of many of these programs. Nichols began his modeling career in 1926 with twin pushers built from bamboo, then scale models and finally originals. . . ."

Duration Stuff. Lt. Richard Moorhead (USAF) of the Fairchild, Wash., Air Devils, established a control line duration mark of 3:30: 18.0 (3 hours, 30 minutes, 18 seconds) last June. At the Plymouth meet in Detroit Earl Witt passed along details as provided by Dick. This is duration with a control line model using a .29 engine.

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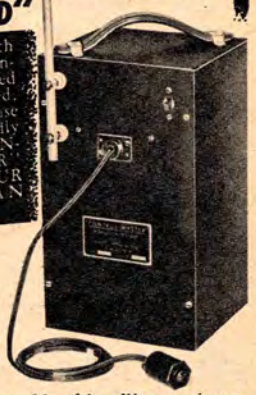

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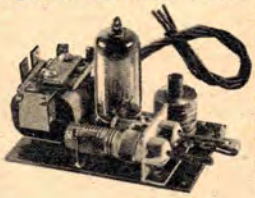

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FIELD STRENGTH METER *Model* **FS3**

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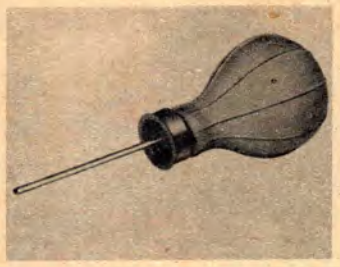

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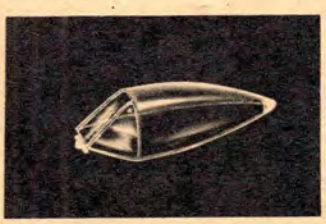

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Dick flew his job, a converted Trixter Beam, from 2:35 p.m. to 6:05.18 p.m. He used a K&B Torpedo .29 Green Head with his original "Longhaul" fuel mixture. Plug was a Champion VG-2 and the prop a Torpedo 10/6. At take-off the model weighed 7 lbs., 11.5 oz., of which 3 lbs., 11.5 oz. was fuel! Dick utilized a 2 quart 4 oz. tank which measured 3x5x8 inches. He landed with a pint of fuel remaining.

Testimonial. Blakely Roberts and Daniel Allen from Greenville, S. C.,: "We have been reading Air Trails for 20 months, Air Progress and the Model Annual. We tried to get a club started after we read the Model Annual for 1953. We showed fellows our models but they weren't interested. We were going to give up when one boy picked up my Air Trails. He saw a picture of a little boy with a big plane and a bigger trophy. That did it! He showed it to others. They all said, 'Hey, how about that club?' So thanks to Air Trails for our club. And we all like those swell plans."

Maybe that's the answer, men. Publicize those big prizes more and perhaps club membership lists will be on the upswing.

Woonsocket Present. Elected officers of the Flying Fools, 5 John St., Woonsocket, R. I., are Gus Lottinville, pres.; Rod Ducharme, veep; Ed Whalley, sec.; and Ted Wenclawik, treas. Monthly meeting. All this from Ted who'd like you to look him up at 5 John.

Oregon Clubs. Earl Cayton sends along a listing of Oregon clubs: Portland Star Dusters, c/o Bob's Model Shop, 51st & N. E. Union Sts.; Albany Aeronauts, c/o Vunk's Model Shop; Corvallis Comets, c/o John Riley, Rt. 4, Box 267; Springfield Yo-Yo's, c/o Scott's Radio Shop; McMinnville Sky Wolves, c/o Tommy's Hobby & Bike Shop; Meford Prop Nuts, c/o Ed Simms, 23 North Fir.

Solid Scale Man Who's Really Solid, Man! A model building hobby started in 1938 near Paris, France, by S/Sgt. Lucien Schultze, USAF, still holds a large portion of his attention and in fact is even related to the job which he holds in the Air Force.

S/Sgt. Schultze is assigned to the 3882nd School Squadron at Gunter AFB, Ala., and works in the Prosthetic Dentistry Dept. as a member of the Airman Staff. He makes and handles dental mock-ups and visual aids for classroom use.

The sergeant has as entertaining a personal history as he has a hobby, having experienced the German occupation of Paris during World War II, where he had lived with his parents since he was five. He was born in the U. S.

Although he and his parents tried to escape to the South of France when the Germans marched on Paris, they were unsuccessful and had to return to Paris where they lived throughout the occupation.

During the occupation Lucien decided that he would continue to make model planes to keep as a souvenir after the Germans withdrew. Having access to pictures of German planes only, because magazines containing accurate pictures of Allied warplanes were not available, Sergeant Schultze was forced to model Nazi prototypes exclusively.

Guided by these pictures, he constructed a number of models, which in 1943 he entered in an exhibition sponsored by the League of French Civil Pilots in Paris. The 18 models which he displayed at the exhibition won the prize cup for him.

During the exhibition Lucien met a French civil pilot who explained to him a new process for finishing his balsa wood models with a high luster, glass-like sheen similar to that found on automobiles.

The use of balsa wood makes it easier for Sgt. Schultze to work out the minute detail which he incorporates in the finished product. Each of his models is complete with a pilot with oxygen mask, an instrument panel, parachute, radar, gunsights, weapons and authentic markings.

Most of his late models are made from small three-view drawings. The sergeant enlarges these plans and proceeds from there with a block of rough balsa wood. His models usually require about 150 hours of painstaking work stretched over a three or four month period. He has completed about 50 models since 1938.

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In '46 Sgt. Schultze enlisted in the Air Force in Paris and was then stationed in Germany until 1949 when he was transferred to the States and McGuire AFB. Here he continued his hobby and entered a model of the Navy's F7U-3 in a contest sponsored by the Lockheed Corp. for Air Force personnel. Sgt. Schultze won first prize with his Cutlass.

Visualize this! Wingspread and fuselage on this solid Cutlass are but 4¼ inches! It is accurate in every respect when compared with the full-size craft. The model's scale is 120:1, as are many of the other models the sergeant has made.

You might say Lucien is a solid modeler's solid modeler. He's married, incidentally, and has one child.

Out of Sight C/L. That's wot Sidney Woods of East Gadsden, Ala., informs us. "Would like to tell you about a new twist in control line and free flight models. Dalton Freeman and Ray Cox fired up their stunt jobs for a combat session. Soon after taking off they hit in mid-air. Ray's plane fell to the ground with a broken wing. When the models collided Dalton's handle was jerked out of his hand. His plane then started circling and climbing. With about a 3-minute motor run Freeman's went out

"'Smatter—rough sea?"

of sight! It was found later inside the Goodyear Tire Company's plant a mighty long way from the flying field. Dalton was flying a fast Sterling Ringmaster with a Fox .35. I have never heard of a control line plane going out of sight like a free flight. Maybe a broken wing on the Ringmaster had something to do with it."

Lost Love. "When I was a youngster," reveals Ronald G. Reeder, 3502 Second St., Union Gap, Wash., "I built a Stinson S.R. 7 model from a kit put out by the Comet Co. Since then I have always desired to build another model of it, but the plans have been lost. I have tried in vain to secure plans from Comet, Stinson and other sources.

"Could you by any slim chance have any plans of this particular type in your back files? If you don't have the S.R. 7 some of the other types such as the S.R. 9, or S.R. 10 will do. I will be glad to pay well for a set of plans in order to be able to build a scale job of this old ship that I fell in love with when I was a kid." Can anybody help Ron?

Wildcat Races. Max E. Mullen, who handles publicity for the Kokomo, Ind., Wildcats, wants to pass along a few suggestions that his group has come up with after three active years in club racing.

'Catters are in agreement that the A.M.A. racing rules (at least, to date) have required too many gadgets. The Kokomo clan thinks that such an elaborate airplane takes too much time and effort to build and the real principles of team racing are lost somewhere in the prop-wash.

. Since the Flying Wildcats are not an A.M.A.-affiliated club, members do not

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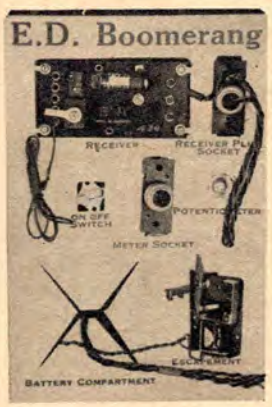

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abide by Academy rules. Their team racers are called "club racers." Throughout the past three years the F.W. boys have drafted a set of club racing rules. They have tried to keep the requirements simple so the younger members can participate and yet make club racing a challenging sport.

Club racing, incidentally, is the main attraction in Mullen's section of the state. At the present time inter-city competition is held with the Peru Flying Tigers. The clubs race for a beautiful 3-foot trophy donated by the Kokomo Junior Chamber of Commerce. During the coming contest season at least three more cities are expecting to join in the fun!

Race days are an all-out affair. The morning is spent qualifying planes and tuning up for that extra rpm. Purpose of the qualifications is to pair the planes for heats by speed. The boys fly 100 lap races (7 miles) using 60 foot lines. One pit stop *must* be made before a race can be won.

This competition is really hot. As Mr. Mullen writes, "My club of 140 members really goes for club racing. With our rules it is just as easy to build and fly a racer as any other type of model craft. We have members under 10 years of age that actually compete in races. We usually fly four in the heats, sometimes weather brings the number of flyers down to three or even two.

"Our racers' average weight is around 16 ounces with a wing area of approximately 120 square inches. McCoy Red Head engines are just about standard power in all now. With a little machine work done on the engines we get speeds up to 94 mph for 75 laps with 2½ ounce tanks. The competition is so keen we must keep on our toes to get the last few mph out of our planes."

M.E.M. offers to pass on any information on club racing that might be desired by other organizations. His address is 2447 N. Washington St., Kokomo, Ind. Here are the club racing rules:

1. All planes will bear a number, pilot and fixed gear. Should resemble racer; no profile fuselages allowed.
2. Maximum fuel capacity, 2½ ounces; maximum displacement, .36 cu. in.; minimum displacement, .19 cu. in.; minimum wing area, 65 square inches; maximum wing area, 180 square inches.
3. Distance, 7 miles (100 laps); one pit stop required. Lines will be 60 feet (an extra foot allowed).
4. Amount of racers per heat and number of heats will be arrived at on race day; director will supervise these decisions. Number of planes present and weather will help these decisions.
5. Pit crews will be two, stand-by permissible. Pit crews will do all starting and refueling.
6. After green flag, all pit crew activity will be outside the 60 foot radius; takeoff in flight pattern only.
7. Any intentional ramming will prohibit that pilot from future competition.
8. All pilots should fly at 20 foot altitude unless passing, etc.
9. Planes will be launched at 90 degree intervals; 1½ minutes will be given to start each heat.
10. Time trials shall be had prior to race time and these speeds tabulated for matching against opposite teams—shall be matched according to speeds and down in their descending sequence.
11. Small minor understandings will be acknowledged on race day.

Well-l-l-l, we kinda get the general idea. We sorta think those rules mean well but could be shot full of holes without too much trouble. Must have been at least 20 years ago when we learned—the hard way, of course—never to write an "etc." in any regulations. What a guardhouse lawyer can do to an "etc."—really criminal.

Anyhow, club racing sounds mighty good to us. Hope others will take it up and give us a report. —THE DOPESTER

Next Issue . . .

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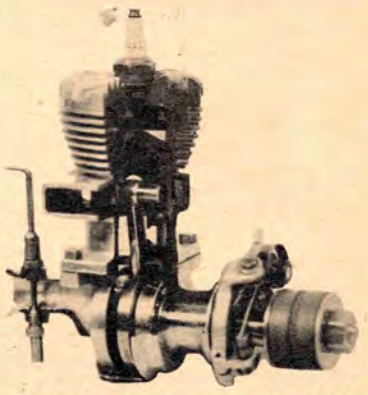

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ROCKET RACER by Paul Palanek. This "Broomstick Missile" takes Cub .14, spans 18 inches, is 23 inches in overall length. A control line plane which looks just like a guided missile

SASKIE by A. G. Ackerman competed with distinction in the International Jetex Duration Competition. Takes Jetex #150 motor, spans 26½ inches, has 25 inch fuselage. Capable of long endurance as a free flight model.

JERSEY LIGHTNIN' by S. Calhoun Smith, the first Goodyear-Continental-type racer-like radio controlled model. Takes K&B .19 or similar engines; spans 53 inches; fuselage is 41 inches. Can be used with any standard radio equipment.

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GROUP 253-R

DOUGLAS B-26 INVADER twin-engine control line flying scale by Lt. Dick Atkins, Jr., USAF. This beautiful ship spans 52 inches; has 35 inch fuselage. Power is two K&B .29's or equal. (Don't confuse this with the obsolete Martin B-26 Marauder.) Squarish fuselage makes for easier building.

STUKA STUNT model by Don Still. This is the remarkable scale-like stunter that took National Meet honors then went on to win the 1953 Plymouth International Stunt Championship. Spans 47 inches; fuselage is 31 inches long. For Fox .29 engine or equivalent.

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770 HUNTS POINT AVENUE NEW YORK 59 N. Y.

Saskie

(*Continued from page* 38)

The fuselage of a Jetex job presents interesting problems in design. With no motor and propeller in the extreme nose for ballast, a real effort for lightness aft of the C.G. is necessary. On the other hand, good strength in the nose is required. The relatively heavy motor, in a crash, will build up heavy loads before it tears loose; therefore the nose structure needs to be reinforced. The weight involved in reinforcing reduces ballast required in the nose.

In effect this model has a 1/16" sheet nose and a 1/32" sheet tail section. This is done by laminating the nose section of the sheet balsa body panels. Since sheet splits easily with the grain, use is made of vertical former grain to resist side panel splitting. Cross-grained reinforcing sheet on top and bottom panels resists top panel splitting. So there is no sharp point of reduction from 1/16" effective sheet thickness to 1/32" sheet thickness, with a consequent weak point; the reinforcing sheeting terminates at staggered intervals. It would be well to examine the cross sections shown on the plans at formers #5 to #7 to get this clear before commencing work.

The stabilizer must be very light to minimize nose ballast required on the finished model. To this end all wood should be soft, the leading edge perhaps a little harder than the rest.

Construction begins with the ribs. From 1/16" sheet cut out 9 ribs alike from the pattern on the plan. At assembly these ribs are shortened to suit, on the trailing edge end, and trimmed off on the bottom to trailing edge depth. The center rib should be prepared for the dethermalizer key. Using the dowel position as shown on the body side view, cut one rib to make a groove 1/16" wide in it after 1/32" sheet side pieces are glued on. The dowel itself is added after covering.

Japanese tissue is the only covering recommended, for its light weight. There are no particular difficulties covering the wing and the stabilizer. The grain of the tissue should run lengthwise on all surfaces except the upper side of the tips, which are crosswise. And of course the undercamber must be glued into the tissue on the under surface of the wing.

"Better check over there, Simpson—must be something dead."

In shrinking, take it easy with the water. A smooth, slack covering is by far the best. If the covering is tight as a drum, warps are sure to exist. So spray lightly, let dry, and check to see what spots need a touch more.

This model definitely cannot be heavily doped; only enough to resist dampness is best. A 50-50 mixture of dope and banana oil (from the drug store if necessary) resists slackening in damp weather. Plasticize this mixture with castor oil and thin it way down. Three coats on the wing will be enough, two on the stabilizer. The finish, because of the banana oil, will be quite good.

Tissue covering on the fuselage is unnecessary. But the nose part can stand a

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little to keep dirt from imbedding in the wood. As shown in the photos a blue covering followed by a band of natural wood and a red stripe is quite attractive. The fuselage can take about four coats of the mixture used. Don't attempt the high gloss type of finish. Once again dampness that can weigh a model down is the prime reason for doping.

The motor can now be mounted. Two screws and the job is done. The motor position is shown on the plans.

Add the piece of 1/16" dowel for dethermalizing to the trailing edge of the stabilizer, and the other piece through the center rib that acts as a key. Slit the stabilizer seat of the fuselage to accept the key and try out the dethermalizer. A 35 degree pop-up is best. For convenience, this angle is shown on the plan. Shave or add to the end of the keying dowel to get this right, if necessary.

The motor position shown on the plans seems to be the most satisfactory one. By moving the motor forward one inch, it is possible to remove ⅛ oz. of ballast from the nose. While this is worthwhile, the advantage is offset by more difficult climb trim. The weight of the charge will cause a nose-heavy condition that varies as the charge burns. While this effect is not too pronounced, it can be seen in the flight pattern. If you like, try a more forward position after the model is adjusted, and compare flight times.

Using modeling clay, balance the model as shown on the plans. This will probably be close to your gliding trim. A few test glides for alterations to the clay and rudder tab and we are ready for our first flight under power. The reason for using clay at first is that it will protect that pretty pointed nose on the initial flights. Later on, when the model is trimmed, remove the clay and rebalance with BB shot in the ballast compartment. This can be done best at home by balancing the fuselage on a sharp edge.

Use half a charge only on your first flights. In event of a crash where the motor comes loose, it may fly off by itself, but not too far on half a charge. Under power the climb should be at about a 45 degree angle, and form no more than one circle before the charge runs out. A straight-ahead climb is all right but on the final burst of power a stall might result. The glide will be in wide circles in the same direction as under power, left or right depending upon the model's warps and your choice.

To obtain the flight pattern described above, the following adjustments can be made. To adjust the angle of climb the stabilizer can be shimmed up, and the ballast adjusted to reestablish the glide. This shimming is very effective and the amount required will not affect the stability. Turn adjustments have not been thus satisfactorily solved. A straight power run and a tight glide are very hard to get, because in Jetex motor thrust offset is relatively ineffective. With this model the best results

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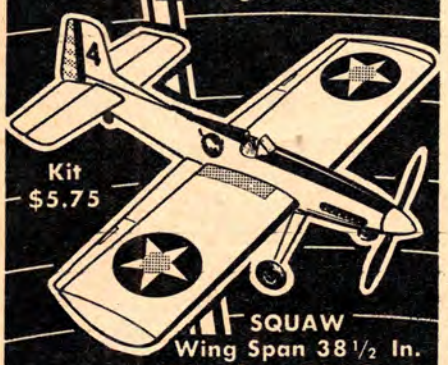

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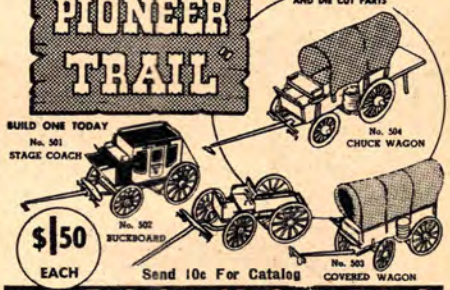

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have been obtained by limiting offset to the amount that the motor clip will swivel in the bracket fixed to the ship. Of course, offset is against the rudder!

To determine the offset, view the model from the rear. Consider the rudder displacement to correspond with the model's turn. Twist the motor in its mounting so the nozzle is moved over on the same side of the body as the rudder, and it will counteract the turn.

Saskie is quite touchy to the rudder, so use care in moving it. The model is stable but too much turn kills the climb.

No trouble has been experienced with setting the model on fire even with no fireproofing. However, an extra long fuse is a hazard; allow no more than a quarter inch for lighting. Carelessness in loading the motor causes all misfires. Invariably a loose screen or broken fuse is the cause. A little care in loading the motor is all it takes. The wing mounts may appear risky; however, I've used them for several years on a Wakefield. As shown in the plans they are adequately strong. The only concession this type of mount requires is that excess wing rubber bands are not used, a good rule to obey with any model. Another good rule is to use more rubber bands stretched less for the tension required.

Bill of Materials

(All wood balsa unless otherwise noted.)

1/16"x⅛"x12", soft. ⅛"x⅛"x12", medium. 3/32"x¼"x7", very soft. 3/32"x⅜"x13", soft. ⅛"x¼"x9", very soft. ⅛"x¼"x18", 2 pcs. soft. ⅛"x¼"x5", medium. 1/32"x3"x36", 3 pcs. soft. 1/16"x2"x36", very soft. 1/16"x3"x18", soft. 1/16"x½"x1½", hard. ¾"x¾"x2", soft. Dowel, 1/16", dia. x 6", 3 pcs. Jap tissue, 1½ sheets. Banana oil, 1 oz. Clear dope, 1 oz. Silk, 1½"x2", 4 pcs. BB shot ballast.

You Ask/"AT" Answers

(Continued from page 20)

Air Force. It is designed for a specific duty which often is different from that of the Air Force and therefore the Navy's types of airplane are not comparable with those of the Air Force.

You cannot compare the XF-90 with the Cutlass. First, they are two entirely different types of airplanes, designed for different duties. Second, the XF-90 was purely an experimental airplane, performance of which was never released. The Cutlass, as far as speed is concerned, is probably faster.

The fuel tanks in the Cougar are pressurized and as soon as a valve is open the fuel is pushed out by the pressure—out of the wing tips.

Can't answer your question positively, but suppose that the F-86's and the Cougars were getting short on fuel, so they went home.

The following jets were in service in Korea: Lockheed F-80, Republic F-84, North American F-86, Lockheed F-94 (very few), Gloster Meteor.

Lightning Colors . . . I am building a Lockheed P-38 and would like to know what the color scheme is except aluminum.

Mark Rogers, Saugus, Calif.

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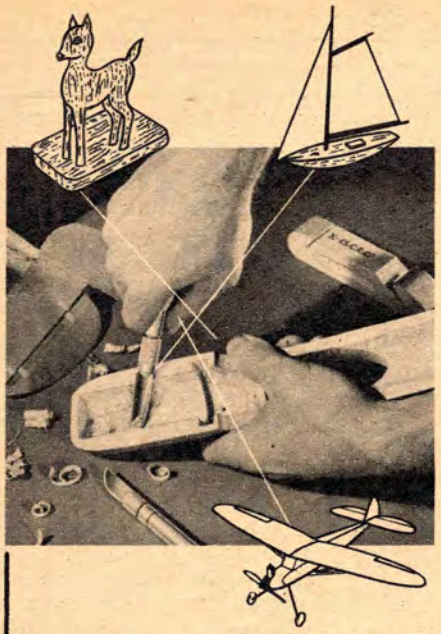

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White Trails from Jets . . . Periodically, jet planes based at the Greater Pittsburgh Airport fly over my home. Sometimes, these planes leave white trails, other times they do not. Kindly explain what these trails are and how they are caused.

Dennis Phillips, Washington, Pa.

● These trails are known as "condensation trails" which are, so to speak, artificial clouds. As you probably know there is always some moisture present in the air, and if the air is sufficiently cooled this moisture condenses and forms tiny visible droplets which are known as vapor or clouds. When the airplane passes through the air, there is a drop in air pressure behind its wings; this drop in pressure creates a drop in temperature and condenses the air behind the wing so that it forms the visible vapor trails. Also, the hot exhaust of the engines has a high percentage of moisture in it and as it hits the air, the same thing happens. So the condensation or vapor trails are formed by both, the wings and the engine exhaust.

Me. 110 . . . Can you give me some information as to the performance and use of the twin-engined Messerschmitt 110?

Robert M. Cohen, Brooklyn, N. Y.

● The Messerschmitt 110 first flew in 1938 and went into action in Poland on September 1, 1939. It was used through the entire World War II as a fighter, light attack bomber and night fighter. There were a total of six series of the 110 produced, the first being the Me. 110B and the last Me. 110G. It was variously armed, from .30 cal. machine guns through 20 and 30 mm cannon; some of them carried as many as four 20 mm cannon and four cal. .30 machine guns on one aircraft. The top speed of the Me. 110G was around 350 mph.

Torpedo Squadron 8 . . . A friend of mine and I have an argument: did Torpedo Squadron 8, which was wiped out in the battle of Midway, use Douglas Devastators or Grum-

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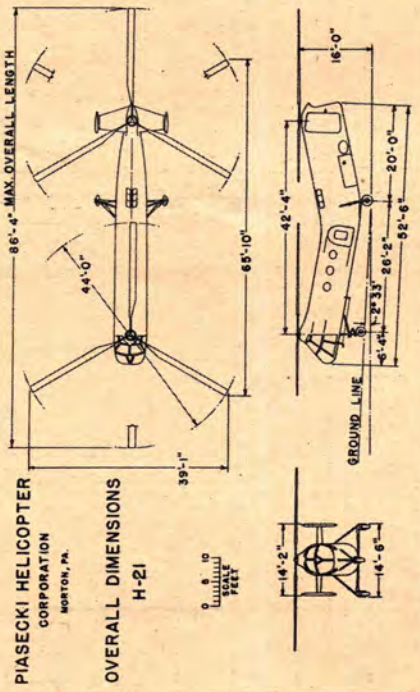

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man Avengers? I say they used Devastators and my friend (?) says Avengers. Who is right?

Bill Dahlgren, Chicago, Ill.

• Torpedo Squadron #8 was equipped with Douglas Devastators at the time of the battle of Midway.

P-51/F-51 . . . What is the difference between the N.A. P-51 Mustang and the N.A. F-51 Mustang? Also, what is the hp of the engine? A friend of mine says it is 3,250 hp, I say it's 3,500 hp.

Dean Charles, Seattle, Wash.

• N.A. P-51 and N.A. F-51 are the same airplane. Soon after the war the Air Force changed the prefix P (pursuit) to F (fighter) on all fighter aircraft.

The engine of the latest F-51 developed around 2000 hp with water injection.

Hiller Hornet Helicopter . . . I am specifically interested in the Hiller Hornet helicopter and would like to know its range, fuel capacity and fuel consumption, weight and payload lift, and if it is on the market for civilians yet.

Don S. Hinton, St. Bethlehem, Tenn.

• The Hiller Hornet helicopter has a range of 50 miles, endurance of 40 min. (range in time). Fuel capacity is 37 gallons, fuel consumption approximately 55 gallons per hour. The weight of the enclosed model empty is 396 lbs., maximum allowable gross weight at take-off 940 lbs. The Hornet is not on the civilian market.

Fastest WW II Fighter . . . Which was the fastest WW II plane? Could you please give me the speed of the top two or three contenders for speed honors? Also can you give me more information on the North American F-82 twin Mustang mentioned in an "AT" question column?

Carl Ebhardt, Halifax, Va.

• The argument as to which World War II fighter was the fastest has been going on for almost ten years now; probably it will never come to a satisfactory solution.

In our opinion the North American F-51H, or P-51H, as it was designated then, was the fastest. Here we quote the speeds of four fastest fighters which went into service toward the end of the war:

North American P-51H	460 mph
Republic P-47N	440 "
Fock-Wulf FW-190D	453 "
Supermarine Spitfire XIV	450 "

The F-82, or Twin-Mustang, as it was known, consisted of virtually two F-51 fuselages with left and right wings joined together by a rectangular center section and horizontal tail. It carried a crew of two, one in each cockpit, the pilot sitting in the left one and the radar operator in the right one. A large radome was slung underneath the center section, and six .50 caliber machine guns were located in the leading edge of the center section. Span was 51 ft. 3 in., length 39 ft. Engines were two V-12 liquid-cooled Allisons developing around 2000 hp each with water injection. Speed was in excess of 450 mph.

Record for Prop-driven Plane . . . While reading a book on famous planes, I ran across a picture of Me. 109. Underneath the picture it said that a stripped-down version of this famous fighter had reached a speed of 485 mph in 1939. This would seem to be a record for propeller-driven planes although I don't know whether this was in level flight or in a dive. I thought Jacqueline Cochran set the world speed record for propeller-driven planes at 469 mph. Could you please straighten me out on this?

Richard Head, Cedar Rapids, Iowa

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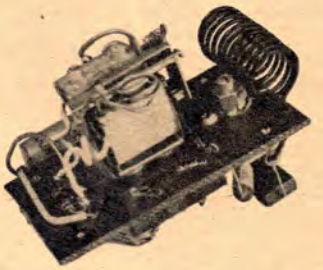

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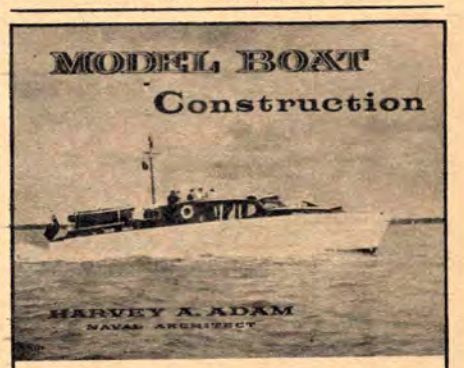

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Luftwaffe Specs . . . I am interested in the Luftwaffe. There are several planes on which I cannot find information. Could you please give me details such as speed, range, armament engine and amount of use for the Do. 335, Fw. 187, Fw. Ta. 152C, Ju. 38 and the He. 343? Do you know of any place where I can get three-view drawings of these planes?

John McMasters, Menlo Park, Calif.

● Do. 335—a few were built, never in service. Tandem engine fighter, two DB 603 engines, 1600 hp each, crew of two. Variety of armament of 20 mm cannon and caliber .50 m.g.'s., top speed around 450 mph, range 870 miles.

Fw. 187—two-engine interceptor, two DB 12-cyl. engines of around 1400 hp each.

Ta. 152C—basically an enlarged version of the Fw. 190 powered with a DB 603L, V-12 engine.

Ju. 388—late version of the Ju. 88, only few built; some produced as night fighters, others as bombers; pressurized cockpit. Bomber version had a bulging bomb bay.

He. 343a—projected four-jet bomber design, was abandoned though one protoype built.

Sorry, we do not know where you can obtain three-views of these planes. You might try Wright Field, Dayton, Ohio.

Douglas A3D . . . Isn't the A3D the first aircraft (bomber) to be ordered by both the Air Force and Navy? You stated in an article that the A3D will go in production for the USAF as the RB-66. Also, is the A3D equipped wtih an arresting hook?

Howard Friedman, Brooklyn, N. Y.

● The Douglas A3D is the first jet bomber to be ordered both by the Air Force and the Navy, but not the first plane. For carrier operation it will be equipped with an arrester hook.

The Good-looking Blackhawk . . . I wonder if you could give me some information about the F-83 and Curtiss F-87 Blackhawk. I don't understand why I haven't heard more of the good-looking Blackhawk.

Do you know of anywhere I could obtain a photograph of the F-87?

J. G. Ellis, Winnipeg, Can.

● The XF-83 was a twin-jet airplane built by Bell; it was used as a test bed for the I-40 jet engines and never put in production. The production order for the Curtiss XF-87 was canceled. We do not know the reason, but assume that the airplane did not turn out as well as expected. Suggest that you write to the Public Relations Office, Curtiss Wright Corp., Wood-Ridge, New Jersey for a picture of the Blackhawk.

Spots on SAAB 210 . . . I have a collection of pictures of planes from all over the world. I have been looking at the picture in my scrapbook of the SAAB 210. I would like to know what are the spots on the left wing from the front.

Lawrence Contreras, Globe, Ariz.

● The spots on left wing just ahead of rudder of the SAAB 210 are small air scoops, probably to provide cooling air to the exhaust pipe chamber, or are valves to augment air pressure in tail pipe.

HVAR Rocket . . . I intend to build a full-size model of the HVAR rocket, but I don't have exact dimensions. I wonder if you could supply the information I need.

John Churan, Crystal Lake, Ill.

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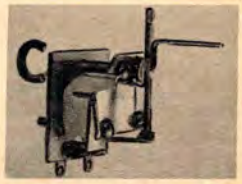

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● The only information we have is that its diameter is 5 inches, length 72 inches.

Models of B-17 . . . Could you please tell me how many models of the B-17 Flying Fortress were produced and what were their distinguishing characteristics?

Joseph David, Bryn Athyn, Pa.

● There were approximately 12 different models of B-17 built, not counting such freaks as the XB-38 and the YB-40 as well as B-17s converted as transports.

Sorry, but space does not permit us to enumerate all the distinguishing characteristics. If you are interested, we suggest that you obtain James C. Fahey's authoritative book "U. S. Army Aircraft," priced at $1.50, which can be purchased directly from James C. Fahey, 3812 18th Street., N. E. Washington 18, D. C.

Turbomeca Jet . . . I'm 15 years old and a Civil Air Patrol Cadet. I'm interested in attempting to build a small lightplane using a Turbomeca jet motor. I would appreciate it very much if you would send me price, size, thrust, and fuel consumption of this motor. Any other specs would be appreciated. I'm studying now toward a career in the Air Force.

Sam Lemon, Hopedale, Ohio

● There are a number of Turbomeca jet engines built varying in size and power as well as price. Cheapest is the Piméné, costing in the neighborhood of $10,000. Fuel consumption is around 1.05 lbs. per thrust pound-hour—or for the 242-lbs.-thrust Piméné it will amount to 39 gallons per hour.

What Happened? . . . I would like to know what happened to the Consolidated-Vultee XB-46, the XB-48 and the Curtiss-Wright F-87. Also, I would like the speed, range and other data on the XB-46 and XB-48. Was the North American F-82 very successful?

David Boozer, Greer, S. C.

● The XB-48, XB-46 and XF-87 were all experimental airplanes. None of them was ever ordered by the Air Force. Very little information is available on them.

The XB-48 had a span of 108 ft. 4 in., was powered by six General Electric J-35 jet engines of 4000 lbs. thrust each, and had a tactical range of 800 miles.

The XB-46 had a span of 113 ft., was powered by four J-35 engines, and had a speed of around 530 mph.

The F-82 was a successful airplane but was succeeded by jet all-weather fighters.

Martin Maryland . . . I would like some information on the Martin Maryland. I believe it was the A-22 but I'm not sure. Also some information on the Curtiss XF-87 Blackhawk. I would also like to know where I could get some three-views of the planes listed above. What is the wingspan of the C-99, transport version of the B-36?

Roy Lonberger, Compton, Calif.

● The Martin XA-22 was the prototype of the Maryland; only one was built under this designation as the entire "Maryland" production went to the RAF and the French Air Force under Lend-Lease. The YA-22

(*Continued on page* 88)

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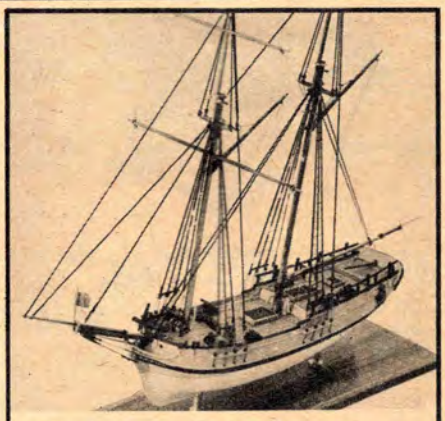

Colonial Schooner
SULTANA
of Boston 1767

Model Shipways' newest! A handsome schooner on 3/16" scale, a real sea-going New Englander, tho only 50 feet of hull. Plans are by Howard I. Chapelle, eminent marine authority. Plans—3 sheets by Chapelle... $1.25

Complete kit, including machine carved hardwood hull, wood parts, castings, cordage, plans and instructions $8.50

See this kit at your dealers, or send 25c for our 1953 catalog illustrating 17 interesting ship kits and many fittings.

MODEL SHIPWAYS
476 MAIN ST. FORT LEE, N. J.

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Pre-Fabricated *Controliners*

Embodying the finest in design, with completeness found only in a Berkeley Kit, these models will satisfy the exacting modeller.

$6.95

For two .045 to .099 Engines plus Jetex 100, 200 or Jetmaster 150 unit, for exact scale power. 27" Wingspan — 3/8" Scale from factory plans.

We urge you to see this kit. Few airplanes lend themselves to model work as well as this Atomic Carrier Bomber. It is designed for active flying, with none of the usual frailties. Carved fuselage and nacelles make it very easy to assemble. Climbs on one engine, uses Jetex (internally mounted) for scale effect and reserve power only. Perfect scale throughout!

North American "AJ-1 SAVAGE"

"PITT'S SPECIAL"

For .19 to .33 Engines — 25½" Wingspan **$4.95**

This colorful stunting biplane stands apart on any field. Decals include red flare design. Metal cowl, wheel pants, celluloid, etc.

CESSNA "195"

For .19 to .49 Engines — 36" Wingspan

This beautiful lightplane features Step-Keel construction. Formers are positioned by a removable jig. Metal cowl, die-cut parts.

North American "T-28"

For .23 to .36 Engines — 30" Wingspan

This new Air Force Trainer aligns itself on the Step-Keel, included in kit. Tri-cycle landing gear, metal cowl, bubble canopy, U-Control.

"MINNOW" Cosmic Wind

For .09 to .36 Engines — 28" Wingspan

Probably the most famous Goodyear Racer of all. Step-Keel Fuselage, wheel pants, metal spinner, cowl, complete decals, canopy, U-Control.

North American "AT-6 TEXAN"

(U.S. Navy Designation SNJ-5)
For .19 to .33 Engines — 31" Wingspan

Authentic and complete down to both Army and Navy decals, the AT-6 is one of the most popular kits of all time. Performance is excellent.

for the finest in flying scale designs—

GIFT SUGGESTIONS:

SELECT THEM, AT YOUR LOCAL HOBBY SHOP

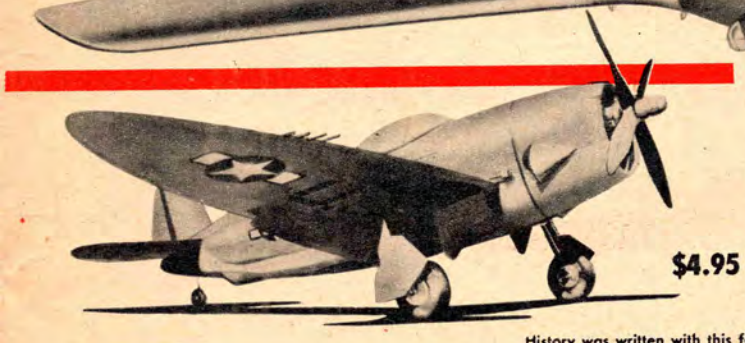
Controliners

North American **"P-51 MUSTANG"**

37" Wingspan — For .19 to .36 Engines

For the detail conscious model builder this kit is a must. Landing gear and tailwheel is retractable and extensible in flight. Flaps, elevator and rudder control are operated through bellcrank.

$5.95



$4.95

Republic **"P-47 THUNDERBOLT"**

40¾" Wingspan — For .29 to .65 Engines

History was written with this famous fighter of World War II. Fully automatic wing flaps and engine throttle control make it possible to duplicate the full scale counterpart in flight.

$4.95

Known as one of the fastest climbing fighters of all time, the Bearcat is an excellent subject for Carrier Deck Flying. "Autotrol" rudder operation eliminates slackening control lines.

Grumann

F-8-F BEARCAT

35½" Wingspan — .29 to .65 Engines

"CHAMPIONSHIP" ½A FLYING SCALE

These full One-Inch Scale models have been designed for free-flight flying, and have proven themselves on the contest field. .035 to .049 engines, CO_2 or rubber power is suitable. For controline conversion, .049 to .099 engines are advised. Die-cut balsa parts.

"FAIRCHILD" FIRST IN OPEN AT '53 NAT'S.

$1.95

CULVER "V"

29" Wingspan

This low-wing sport plane turns in long stable flights. The tricycle landing gear adds realism to landings.

$1.95

INTERSTATE CADET

35" Wingspan

A nine minute single flight at the 1951 Dallas Nationals is the best measure of this model — a 3 time Nationals Winner!

$1.95

PIPER SUPER CRUISER

35½" Wingspan

This model won 1st place in the Open division at the 1952 Los Alimitos Nationals. Plans show pontoon details. Wheels in kit.

$1.95

STINSON SENTINEL "L-5"

33½" Wingspan

This model is a consistant winner at National Meets. It is a commercial version of the Army's "Flying Jeep."

$1.95

STINSON VOYAGER "150"

34" Wingspan

Equipped with wing slots, this authentically detailed model flys with the best. Designs in this series have been chosen for performance.

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FAIRCHILD 24 "RANCHER"

36½" Wingspan

Largest in the series is the never to be forgotten Fairchild. Stable, strong, detailed, it is ideal for contest experimentation.

$1.95

AERONCA SEDAN

34" Wingspan

Featured as a landplane, plans show pontoon details for those desiring the added thrill of water take-offs. Finished model is really spectacular.

CESSNA "140"

33" Wingspan

$1.95 The clean lines and stable plan form of the Cessna make it ideal for "½A" or rubber power. Contest potentialities are unlimited.

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The finest Radio Control Assembly Kits that money can buy. No surplus components - no used parts. Every part engineered for its specific job. Proven by over five thousand satisfied users.

"Super Aerotrol" Crystal Controlled

TRANSMITTER

In Kit Form: less tube **$19.95**

- Portable — Self contained — No separate antenna — No external Batteries!
- Operates on 27.2 mc. - Weighs 3.5 lbs.

Kit includes all necessary parts (except tube and batteries): Precision Ground Crystal; Painted Metal Cabinet; Finished Sectional Antenna; stamped and formed chassis with all holes punched; all necessary components, resistors, condensers, coils and chokes; color coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included.

"Super Aerotrol" Dust Core Tuned

RECEIVER

In Kit Form: less tube **$13.95**

- NEW "locked-channel" dust-core tuning.
- Light in Weight, 2¾ oz. less batteries.
- Super-regenerator circuit, dependable.

Kit includes: Finished, tested sensitive relay; finished dust-core tuner; drilled bakelite base with condensors and eyelets attached; all electrical components, condensors, resistors, coils, chokes and potentiometer; all necessary contacts, and color-coded wiring. Can be assembled in less than two hours. Complete instructions are included.

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(*Continued from page 85*)

had a wingspan of 61' 5", was powered by two 14-cylinder Pratt Whitney R-1830 engines of 1200 hp each, and had a top speed of 275 mph.

The Curtiss XF-87 Blackhawk was one of the first all-weather jet fighters, with a span of 60 ft. and was powered by two Westinghouse J-34 jet engines. It never got out of the experimental stage and its place was taken by the Northrop F-89 Scorpion.

We do not know where you can obtain three-views for these planes. Try writing to the Public Relations Office of Glenn L. Martin Co., Baltimore 3, Maryland, or Curtiss-Wright Corp., Main & Passaic Sts., Wood-Ridge, New Jersey.

Wingspan of the XC-99 is 230 feet.

Capt. Page's Racer . . . Was the airplane known as "Capt. Page's Naval Racer" ever equipped with pontoons? Also, was it a monoplane or a biplane? The May 1952 edition of Air Trails shows Capt. Page's Racer, but it is a high-wing monoplane with fixed landing gear. Is it possible that earlier prototypes of this aircraft were fitted with pontoons, were also biplanes? Did the aircraft in question ever enter competition in the Schneider Cup races of the day?

Norman F. Eslinger, Chicago, Ill.

● Captain Page's Racer was a modified Navy Curtiss Hawk fighter, designated as XF6C-6. It was converted from a biplane to a monoplane by removing the lower wings and bracing the top wing with "V" struts. A wing skin radiator was installed to cut down drag, as well as special landing gear with pants. It was powered by a 700 hp Curtiss Conqueror engine.

Swept-forward Wing . . . I was planning a radically new type of wing because I design airplanes as a hobby. Can a swept-*forward* wing be used to advantage on high-speed aircraft (600-1000 mph)? If it could would it be possible to use a canard-type layout placing the swept-forward wing in front? I have consulted an Air Force officer but offhand he knows nothing about such a device.

Jimmy Sattler, New York, N. Y.

● The swept-forward wing for high-speed aircraft is not a new idea. The Germans built a six-jet swept-forward-wing bomber toward the end of the war that was designated as the Junkers Ju-287. The plane had a maximum speed of 510 mph. However, not much has been done with this wing shape, because the swept-back wing has proved so successful. Swept-forward wing requires considerable dihedral for stability; this increases the drag, and therefore requires more power than the swept-back wing, which, laterally, is exceptionally stable, requiring no positive dihedral and sometimes even negative dihedral. In your accompanying sketch the forward tail surfaces on a delta-shaped airplane are superfluous as this type of airplane flies well with the control surfaces incorporated in the trailing edge of the wing, and addition of a forward-mounted horizontal tail will not only increase drag but also present unfavorable control characteristics. Canard type planes still present a number of control problems, especially from the standpoint of moment arm, and we suggest that conventionally mounted horizontal tail, in the rear, will be the best solution for your swept-forward wing design.

Ju. 88 with U. S. Insignia . . . What was the difference between the P-43, Army pursuit interceptor, and the P-47? Why do some pictures of the Junkers Ju. 87 Stuka have a one-man canopy while others of the same plane (I think) have a much larger one, perhaps for a crew of two or three? I was also baffled when I was looking at a local reference book to find a picture of a Junkers Ju. 88 with a U. S. Air Force insignia. I thought maybe it was being used for experimental work after the war. Is this true?

George Millard, Austin, Texas

● Here are the specifications for the Republice P-43 and P-47:

P-43A—span 36 ft.; length 28 ft. 6 in.; gross weight 7800 lbs.; engine Pratt and Whitney R-1830 of 1200 hp; top speed 360 mph.

P-47D—span 40 ft. 9 in.; length 36 ft. 1 in.; gross weight 14,500 lbs.; engine Pratt and Whitney R-2800 of 2000 hp; top speed 420 mph.

All Ju. 87 Stuka bombers carried a crew of two; we do not know of any with single cockpits. Some had shorter, others longer canopies depending on model. The Ju. 88 with USAF insignia was a captured ship and was used for evaluation purposes. It was flown over to the U. S. from Africa via South America.

"Reso-jet" . . . What exactly is a "reso-jet?" I refer to your illustration of the McDonnell KDH-1 Target Drone on page 81 of your *Air Progress*.

J. G. Ellis, Winnipeg, Can.

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While every precaution is taken to insure accuracy we cannot guarantee against the possibility of an occasional change or omission in the preparation of this December 1953 index.

● Reso-jet, otherwise resonance jet, pulse jet, is a reaction-propulsion engine having a series of flapper valves mounted at its air intake end which rapidly open and close. When the valves open the air is admitted into the jet tube and fuel is injected and ignited; at this instant the valves close and the gas is ejected through the exhaust end of the tube, creating forward thrust. The Dyna-jet model engine is an example of a reso-jet.

Caproni F-5 Data . . . I would like information on the Italian jet lightplane Caproni F-5. I am a licensed private pilot, and I would greatly appreciate the statistics on this plane.

Could you please tell me what the plane sells for, and if it is being sold in the United States?

Jack R. Kettler, SKSN, U. S. Navy

● The Caproni F-5 is an experimental light jet plane and none has been sold in the U. S. No information on the price is available as the ship is a prototype. Span is 27 ft.; wing area is 107 sq. ft.; length 21.7 ft.; weight empty 1065 lbs.; weight gross 1650 lbs.; top speed 243 mph. Powered by one Turbomeca "Piméné" jet engine rated at 242 lbs. of thrust.

Mustang Series . . . A while back you said one Mustang was the F-51K. North American, said the "H" was the last. There was a Mustang with a five-bladed prop; what was its speed and ceiling? Could you give me some information on the F-57 Mustang?

David McLaren, Springfield, Ill.

● The P-51K, or as it is now known, the F-51K, is the last production Mustang of the North American Co. Close to 1400 were built.

The Mustang with a five-bladed prop was the XP-51G, supposed to have 472 mph speed. There was no F-57 Mustang. The designation was for an experimental Tucker lightweight fighter with 720 hp engine.

Marauder vs. Invader . . . While looking through an old "AT", I noticed plans for a model of the Martin B-26 Marauder. There must be some mistake in the designation as Martin did not produce the B-26. Douglas produced this plane under the nickname of the "Invader." However, Martin did produce an airplane called the "Marauder" under another designation. Right or wrong?

Jerry Cohen, Columbus, Ohio

● We are afraid that the error is yours. The Martin Marauder *was* designated B-26. The Douglas "Invader" when it first came out was designated A-26. Later on the Air Force dropped the letter designation "A" and renamed the "Invader" B-26; by then the "Marauder" was already out of service.

Sub-rudder on F-84? . . . I would like to know if there is any other name or designation for the "Jack 11." I have several pictures of this aircraft and that was the only name on it.

Also, I would like to know what the F-84 uses its sub-rudder for and if the F4U-5 ever had a three-bladed propeller.

Harry Loiland, Adams, Ore.

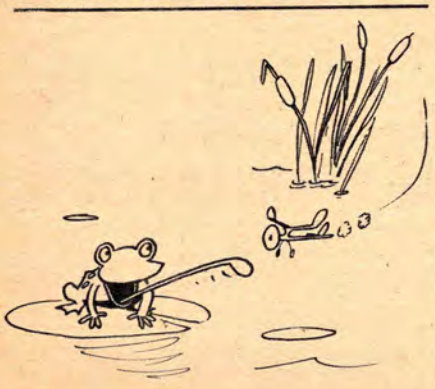
● Japanese name for Jack 11 was Raiden, meaning "Thunderbolt" or J1M1, letter "J" standing for "land-based fighter," letter "M" for manufacturer, "Mitsubishi." What you think is a sub-rudder on the F-84 is actually a tail bumper to save the rear fuselage section in the event a pilot brings it in in a too-high "nose up" altitude.

The F4U-5 has a four-bladed propeller; only the very early model F4U-1 had a three-bladed propeller.

Speed of Scorpion . . . Can you please tell me what the top speed of the F-89 Scorpion is?

Perry Huntoon, West Orange, N. J.

● Top speed of the F-89 is around 600 mph.



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with Adjustable Pitch Tail Rotor
For .045 to .074 Engines — 25" Rotor Span $3.50

CLOUD COPTER "D"
with Fixed Drogue Tail
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Kits Include:
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CARVED BALSA BODIES
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- Deep Drawn Metal Cowl!
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- Side Profile Assembly Keel!
- Shaped and Notched Wing Edges!
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- Celluloid, Covering Tissue!

Designed by Don McGovern and Bill Effinger

The Curtiss Hawk "P-6E" is one of the great historical models of the Air Force. It was our best pursuit ship of the early 1930's. Berkeley's model is authentic, scaled without deviation from rare service manuals supplied to us by the Air Force Technical Museum. The complete decals for the famous "17th Pursuit Squadron" from Selfridge Field, Mich. make it a really beautiful model to own and fly.

Army Liaison YL-24 **"HELIOPLANE"**

Variable Camber Wing for Two-Speed Radio Control Flying

For .049 to .14 Engines — 39" Wingspan — 1" Scale

$3.95

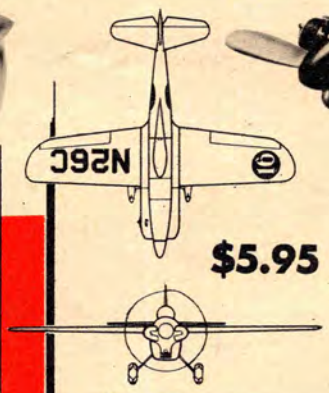
Operating wing flaps may be used for two-speed flight. Depress 10° for free-flight, 25° for slow radio control flights, or raise 5° for high speed flight. Fuelproof decals; shaped and die-cut parts, wheels, etc. Detailed full size plans show radio installation.

Cessna L-19 **"BIRD DOG"** **$2.95**

For Free-Flight Gas — Controline — Rubber Power

.035 to .049 Engines for Free-Flight .049 to .099 Engines for Controline

In active duty in Korea, this new liaison plane is perfect in proportions for model work. Plans show it as a free-flight "1/2 A" gas, with details for rubber and controline conversion. Fuelproof decals, die-cut balsa, plywood and celluloid; shaped and notched wing edges; formed gear, etc.

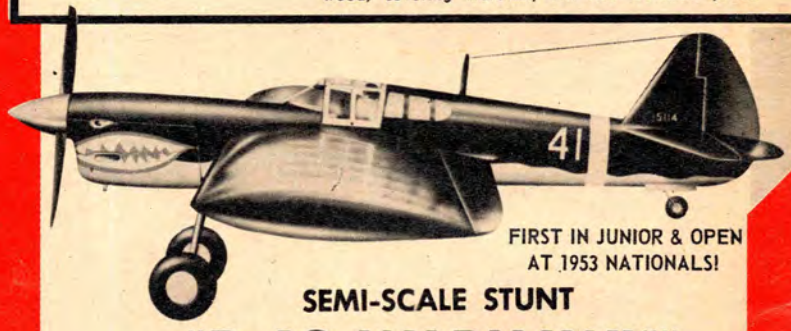


$5.95

"SHOESTRING"

For .14 to .36 Engines — 28" Wingspan

This Continental Trophy winner makes a perfect 1 1/2" scale controline model. The kit includes genuine Jim Walker "U-Control"; metal hardware; formed metal wheel pants; metal spinner; formed sheet metal landing gear; metal bushed rubber wheels; die-cut balsa; plastic bubble canopy; fuelproof decals; hardwood mounts; die-cut plywood; covering material; full size detailed plans.



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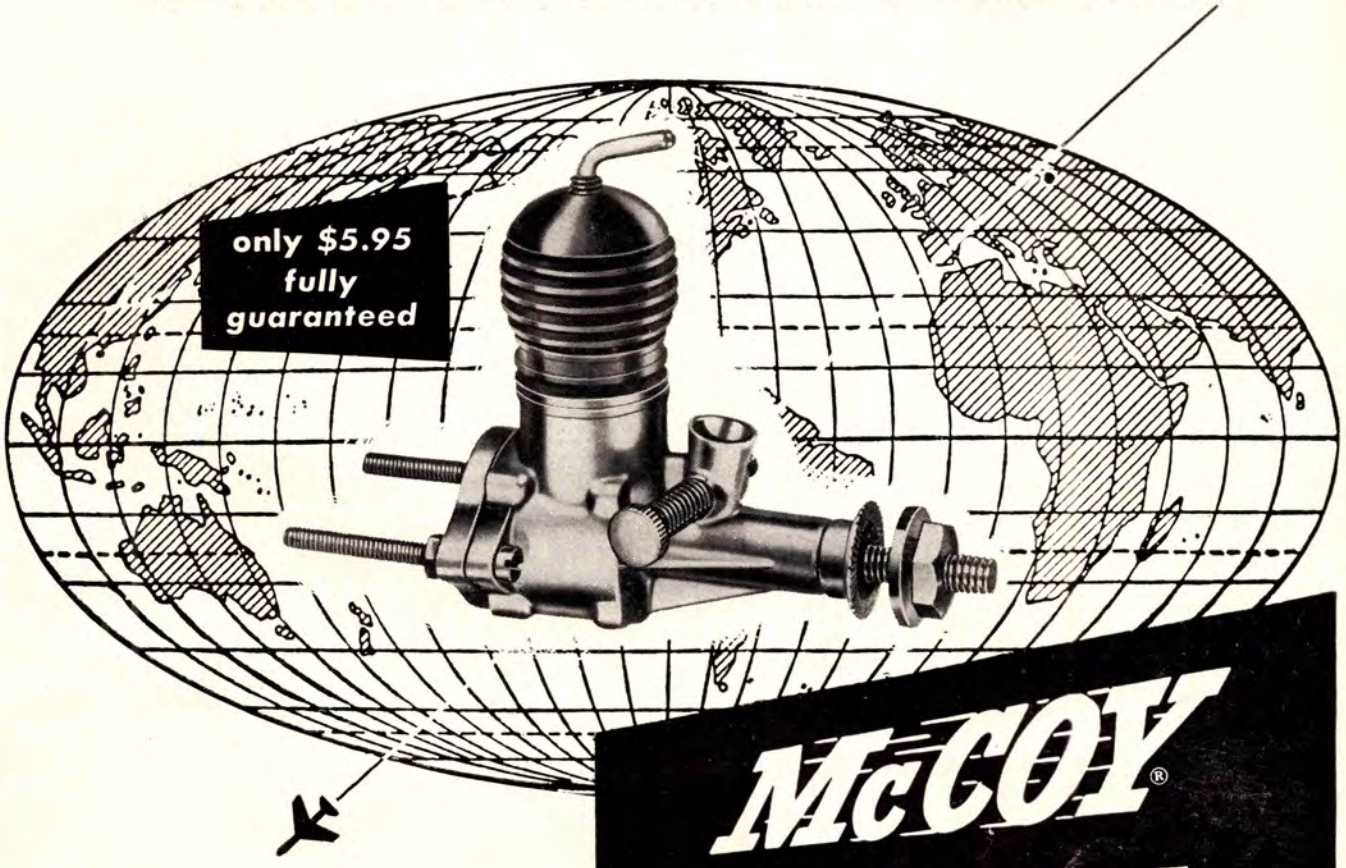

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Already proven... in its class—nothing can touch it! Here's an engine that's full of gun and packs far more power than any comparable .049 glow type engine.

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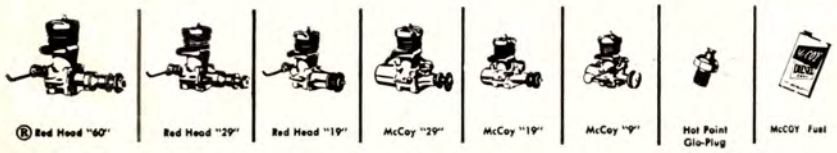

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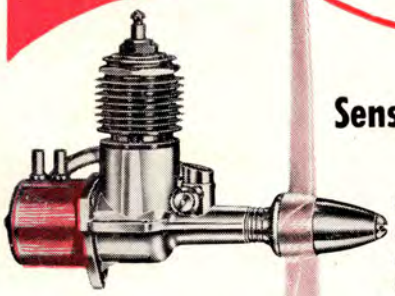

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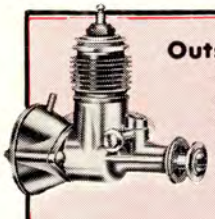

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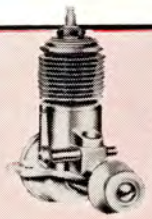

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